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ABSTRACT

Item analysis was made of results of a national achievement testing program of nearly 19,000 primary and secondary school hearing impaired students enrolled in special educational programs in the Spring of 1971. Testing instrument was the Stanford Achievement Test Series (Form W). Individual test items or descriptions of the academic information each item purports to measure are shown, followed by percent of correct answers for the item. Analysis of results showed a trend for students to do well on items measuring mechanical skills of reading and writing, but not on items measuring overall reading comprehension and inferential understanding of paragraphs. A similar division of abilities was noted on test items measuring mathematical ability. Data collection methods are reviewed. Given are an explanation of item analysis, suggestions for its usages, and qualifications and limitations of the test results. (KW)

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ANNUAL SURVEY OF HEARING IMPAIRED CHILDREN AND YOUTH

EC 041867

ITEM ANALYSIS OF ACHIEVEMENT TESTING PROGRAM FOR HEARING IMPAIRED STUDENTS

UNITED STATES, SPRING 1971

Office of Demographic Studies
Gallaudet College
Washington, D.C.

1

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DATA FROM THE
ANNUAL SURVEY OF HEARING IMPAIRED CHILDREN AND YOUTH

ITEM ANALYSIS OF AN ACHIEVEMENT TESTING PROGRAM FOR HEARING IMPAIRED STUDENTS

UNITED STATES: SPRING 1971

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Included are the percentage of hearing impaired students who answered correctly each question of the Stanford Achievement Tests. A description of each question is also provided. These data are based on the results of tests administered to almost 19,000 hearing impaired students during the Spring of 1971.

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March 1972

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Sal DiFrancesca
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Washington, D.C.
March, 1972

ABSTRACT

This publication contains the item analysis of results of a national achievement testing program conducted by the Annual Survey of Hearing Impaired Children and Youth in the Spring of 1971. Test results of 18,876 students from 292 primary and secondary schools and classes for the deaf and hearing impaired are represented. The Stanford Achievement Test Series (Form W) was used as the testing instrument. Individual test items or a description of the academic content each item purports to measure are shown followed by the percent of correct answers (item analysis) for the item.

There is a general trend for students to do well on items measuring mechanical skills of reading and writing, for example: correct word spelling, knowledge of the rules of capitalization and punctuation, and the literal understanding of words. However, items measuring overall reading comprehension and inferential understanding of paragraphs are generally more difficult. A similar trend appears on those test items measuring arithmetic ability. Students perform well on items assessing knowledge of basic computational mechanics, i.e., addition, subtraction, multiplication, and division. They have much more difficulty on items measuring comprehension of mathematical concepts and ability to use their fundamental arithmetic skills in novel problem solving situations.

A review of methods employed in collecting the data is given along with an explanation of the item analysis and suggestions for its usages in academic and research settings. Qualifications and limitations of the achievement test results are also given. These data are useful for teachers, school administrators, curriculum planners, test analyses and development, and research in educational and learning patterns.

The Annual Survey of Hearing Impaired Children and Youth is conducted by the Office of Demographic Studies at Gallaudet College. The major portion of funding for the project is provided by the Division of Research, Bureau of Education for the Handicapped, Department of Health, Education, and Welfare.

Item Analysis of an Achievement Testing Program for Hearing Impaired Students United States: Spring 1971

Sal DiFrancesca Ph.D. and Susan E. Carey

INTRODUCTION

The item analyses of academic achievement tests administered to approximately 19,000 students enrolled in special educational programs for the hearing impaired during the Spring of 1971 are given in this report. These item analyses represent the percent of students taking the test, who answered each item in the test correctly. Item analyses may be used as indexes of how easy or difficult each item or question on the test was for this population of students. The Stanford Achievement Series was used as the test instrument. The item analyses are presented along with the actual test questions or a description of the academic curriculum the item was intended to measure.

The data in this report were collected in a nationwide Achievement Testing Program as part of the Annual Survey of Hearing Impaired Children and Youth. The Annual Survey is conducted by the Office of Demographic Studies of Gallaudet College, Washington, D.C. A major portion of the funding for the Survey is obtained from the Division of Research, Bureau of Education for the Handicapped, Department of Health, Education, and Welfare. The balance of the funding is provided by Gallaudet College. Further details concerning the activities and policies of the Survey may be found in Appendix I.

PURPOSE OF THE ACHIEVEMENT TESTING PROGRAM

The Annual Survey of Hearing Impaired Children and Youth was established to obtain information on the characteristics of all hearing impaired individuals through college age in the United States. An important characteristic of these students is their academic progress and learning patterns. These characteristics are usually determined by academic achievement tests. At this point, however, no achievement tests have been standardized for hearing impaired students, nor have any achievement tests used for hearing students been demonstrated to be technically satisfactory for hearing impaired students. The Annual Survey is presently devoting a part of its resources to establishing standardized testing procedures for hearing impaired individuals and to making achievement tests more reliable and valid for them.

As a first step in its research in achievement testing for hearing impaired students, the Annual Survey conducted a testing program in the Spring of 1969 in which 12,000 students participated. The results of the program were published in earlier reports.[1] The analyses of the 12,000 test records

[1] *Academic Achievement Test Performance of Hearing Impaired Students, United States: Spring, 1969;* and *Item Analysis of Academic Achievement Tests, Hearing Impaired Students, United States: Spring 1969.*

showed the need for establishing standardized testing procedures for educational programs for the hearing impaired throughout the country, and pointed to limitations of the Stanford Achievement Test when used with hearing impaired students. This empirical information led to the development of supplementary testing materials, and some modifications in testing procedures and in the test booklets themselves. These new procedures were introduced into the 1971 testing program and are further described in Appendix II and in the methodology section which follows.

The purposes of the 1971 testing program therefore, were twofold: (1) to enhance the value of achievement testing for students enrolled in educational programs for the hearing impaired by analyzing the data obtained; (2) to provide schools and teachers with measures of academic progress of individual students along with summary tabulations for their programs.

DATA SOURCES AND METHODOLOGY

All special educational programs for hearing impaired students in the United States known to the Annual Survey in the Fall of 1970 were invited to participate in the Achievement Testing Program. This group consisted of 776 programs representing approximately 48,000 students. A total of 292 programs ordered the testing materials, administered tests to their students and returned about 19,000 completed tests to the Annual Survey for scoring. A listing of participating programs will be found in Appendix III.

Reasons most frequently presented for not participating in the testing program were: the enrollment of preschool level students only; itinerant educational programs where students were located in small groups across a wide geographical area; insufficient staff or time to administer the tests; compliance with school district testing programs not using the Stanford Tests or not conducting testing in the Spring of 1971; and reservations concerning the Stanford Achievement Tests for hearing impaired students.

Table A presents the distribution of tests administered according to the type of educational program in which the students were enrolled. An additional 156 tests representing three programs were received too late to be included in this report.

All of the participating programs were asked to follow standardized procedures in administering the tests. In addition to the directions for administering the tests provided by the test publishers, the following procedures were included: 1) each student was given a brief pre-test, or screening test which was used to determine the most valid full battery level he was to receive; 2) each student took a practice test (developed for this testing program) during which he was instructed in test taking procedures; and 3) at the Primary I and II test levels, a special test modified for hearing impaired students was used (Form W-HI). The rationale for implementing these standardized procedures and a description of the materials themselves are provided in Appendix II.

QUALIFICATIONS AND LIMITATIONS OF THE DATA

It is most important that individuals using the data herein be aware of the limitations inherent in the item analysis data. These limitations are based primarily on the fact that the Stanford Achievement Tests were developed for students attending regular school programs.

Concern is centered about three test features. One problem lies in the test structure or format. The directions for taking these tests are designed for oral dictation. Despite the special edition of the Primary I and II levels (Form W-HI), many actual test items within the Primary levels also are basically designed to be dictated. The language level and structure of the test questions may be biased against language handicapped students. A student may know the proper answer to a question but fail it because of inability to grasp the language complexity. This problem is more pronounced for students at early educational levels as their language skills are less developed.

TABLE A: Number and percentage distribution of hearing impaired students participating in the Achievement Testing Program by type of educational program: Spring 1971

Type of Educational Program	Number	Percent
All Programs	18,876	100.0
Schools	13,150	69.7
Classes	5,726	30.3

The validity of the Stanford Tests for special educational programs for the hearing impaired also has not been adequately determined. The test content reflects the curriculum of regular schools and may vary in content and emphasis from what is actually taught in special educational programs for hearing impaired students.

Third is the matter of standardized and uniform testing procedures. The effectiveness of the testing procedures introduced by the Annual Survey has not been thoroughly explored. Nor is it certain that all participating programs used the supplementary testing materials and followed the testing procedures as prescribed.

It would appear appropriate to add here that preliminary analyses of the results contained in this report do indicate a general improvement in quality of the 1971 testing data over that of the 1969 testing program. With the introduction of the supplementary testing procedures, the sub-tests appear better able to measure true differences in academic achievement performance among hearing impaired students. A separate study conducted by the Annual Survey investigating the reliability of the Stanford Tests for hearing impaired students has also shown promising results. The Annual Survey now has sufficient testing data to proceed further with investigations of the overall suitability of the Stanford Achievement Test for hearing impaired students. The results of these investigations will be forthcoming.

For the present, these data should not be used to compare the academic achievement of hearing impaired students to hearing students. Nor should these data be considered as the basis for establishing national norms for hearing impaired students. The effectiveness of the procedures implemented to gather these data, the preciseness of the test instruments themselves, and the representativeness of the sample of students encompassed, have not been satisfactorily determined at this time. Appropriate uses for these data are suggested in later sections.

DESCRIPTION OF THE STANFORD ACHIEVEMENT TESTS

The Stanford Achievement Tests are described by their authors as comprehensive academic achievement tests designed to measure student progress in subject areas, skills, and understandings generally accepted as desirable outcomes of elementary and secondary education. The tests are intended to provide dependable measures of these outcomes, comparable from pupil to pupil and grade to grade. They are particularly useful in the evaluation of student progress, guidance, and improvement of instruction.

Five test battery levels of the Stanford Series, consisting of the Primary I and II, Intermediate I and II, and Advanced levels, were used in this study. Each battery covers academic materials appropriate for students within certain grade ranges. The sub-tests within the battery cover the academic content areas usually found in school curriculums for hearing students for the respective grades. Periodic revisions are made in the tests by the publishers so that their content continues to reflect the curriculum of school programs for normal hearing children. This study used Form W of the 1964 Stanford edition.

Table B shows the distribution of tests according to battery level in which the data in this report are based. As can be seen, more than two-thirds of the students were administered either the Primary I or Primary II test level.

DEFINITION OF ITEM ANALYSES DATA

An item analysis is a measure of the difficulty of each test item. The difficulty of an item is based on the percentage of students who answer it correctly. The easier the item, the larger the percentage will be. A test item answered correctly by 75 percent of the students is an easier one than is correctly answered by only 25 percent. In constructing the Stanford Achievement Tests the au-

TABLE B: Number and percent distribution of hearing impaired students participating in the Achievement Testing Program by test battery level: Spring 1971

Test Battery Level	Number	Percent
All Levels	18,876	100.0
Primary I	6,709	35.5
Primary II	6,598	35.0
Intermediate I	3,204	17.0
Intermediate II	1,558	8.2
Advanced	807	4.3

thors took into consideration item difficulty. Extremely easy or difficult items serve little purpose in differentiating ability levels of students and are thus eliminated. Within the test, items are usually placed in order of ascending difficulty. Students begin with relatively easy items and proceed to items of increasing difficulty. This arrangement gives the student confidence and avoids the pitfalls of wasting too much time on items beyond his ability at the expense of attempting other items he could complete correctly.

As indicated, an item analysis is defined as the percentage of students who correctly answer each item or question. The percentages were computed by dividing the total number of students who gave correct answers for each item by the total number of students who attempted one or more items in a sub-test. The denominator is not based on the number of students who attempted the particular item but on the number of students taking the sub-test in which the item is contained. Mathematically, unanswered questions are treated as though wrong answers have been given to the questions.

USES OF ITEM ANALYSES DATA

The schools and classes that participated in the national testing program received an item analysis based on the performance of their own students. These programs are thus able to compare the individual item performance of their own students with the national summary of data presented in this report. This may provide a basis for reviewing school curriculums and the effectiveness with which the curriculums are implemented.

Individual school results for the various subtests and item classification categories may be plotted against the national pattern for the same items. Patterns of relatively strong and weak areas may emerge for the particular school. The school must then decide whether the item content is contained in the school curriculum, the emphasis it is given in the instructional program, and the importance that content has for their students. If a school observes its students to get low item analyses percentages for certain test items or on an entire sub-test, the extent to which the students are instructed in the academic materials measured by the test must be considered. Any parts of the test not contained in the school curriculum are invalid and the scores obtained on them must be treated accordingly. Each program should determine the validity of the Stanford Achievement Tests for its particular purposes.

Caution: The test should be judged suitable or unsuitable for a particular school to the extent that it corresponds with the school curriculum. *The school curriculum is not to be appraised using the test as a standard.* The test is not an index of what should be taught, but of what actually is taught in the typical school for hearing students.

A teacher may use the item analyses to evaluate class performance. For example, if everyone in the class gets nearly all items in a particular academic category wrong, the causes for the weakness in that area should be determined. Some major causes may be that the area is not covered in the curriculum, the language used on the test may be too difficult or greater emphasis must be given to the topic in the instructional program.

Caution: *The teacher should not use item analyses in diagnosing difficulties of individual pupils.* The number of items in most academic categories is not sufficient for diagnosis of individual strengths and weaknesses. To be reliable for individual students, such judgements must be based on a more comprehensive sampling in the subject area.

For research purposes, the item analyses contained herein can be of value in shedding light on the learning and educational development of hearing impaired students. The items can be viewed in terms of the mental, learning and conceptual abilities required to master them. Student performance in the various learning ability categories can then be examined. Of special interest would be the patterns of academic content and nature of the learning processes and approaches which seem to characterize this group.

As a guide in the selection of tests, the item analyses may be used to determine the validity of a test for a particular student group. For example, the relationship between the language development of students and their performance on certain test items can be studied using the item analyses. The language length and complexity of the item can be related to student ability to answer it correctly. Test questions should not be given if the students are unable to manage the complexity of the language in which the questions were phrased.

In summary, item analyses of academic achievement tests are particularly useful to teachers, curriculum planners, school administrators, educational researchers, and other individuals concerned with hearing impaired students. To fully understand and to apply these item analyses data to individual

programs and students, the qualifications and limitations cited above and elsewhere in this report should be carefully read.

ITEM CONTENT DESCRIPTIONS

In the item analyses tables that follow, an overall effort was made to classify each item as to the academic content area it was designed to measure. Whenever possible, the general subject areas contained in the test were broken down into groups of sub-categories and skills being tested. Specific curriculum topics were isolated and the items measuring student achievement in these areas were identified. For many of the sub-tests, such item content descriptions were provided by the test publishers, Harcourt Brace Jovanovich, Inc. In cases where no item content descriptions were available from the test publishers, they were developed by the authors of this publication. In establishing item content descriptions, different individuals independently classified each test item. Conflicting classifications were discussed until agreement was reached on the most appropriate category for each item. The principle used in classifying the item was usefulness to the teacher. Some items might be differently classified from a purely theoretical point of view. The categories should not be rigidly interpreted nor should the items be expected to fit neatly and exclusively into a single category.

There remained some sub-tests for which item content classifications could not be produced. The structure of the questions or the nature of the curriculum program measured was such that the items could not be reliably classified under one general category. In these cases, the test question itself is shown, followed by the item analysis percent. For these items the reader must review the question and judge the academic curriculum it was intended to measure.

HIGHLIGHTS OF THE DATA

There is concern among teachers and testing program coordinators on how to select the most proper test battery level a student should receive. A review of summary data from this item analysis is useful in shedding light on the problem of test selection methods. For a test to be most effective and useful to teachers, its items must be able to measure progress in the student over short periods of time and be able to reflect differences in actual achievement levels among the students taking the test. Collectively the individual items must sample a broad range of abilities.

The average level of difficulty of the items in the test is a crucial factor to consider in selecting the most appropriate test for a group of students. In general, the set of items must not be too difficult or too easy for the group, or the usefulness of the test is reduced. If the items are too difficult, only a small percentage of students will answer them correctly. Differences in abilities among the remaining groups of students will not be validly measured. Conversely, the test will not discriminate among ability levels of students if the items are all too easy and 95 percent of the students get each item correct. A test is most effective for a group of students when the average number of correct answers to the items is above what would have occurred if the items were too difficult and the students were forced to guess at them, and below the point at which the items were too easy and nearly everyone answered them correctly.

Table C presents the average of the item analysis percents for the items in each sub-test of the Stanford Series. These averages of item analysis percents show that most of the sub-tests were in an intermediate range of difficulty for the students, or between 40 to 60 percent. Judging from this group data, it appears that most students received test battery levels appropriate to their abilities.

By studying the item analysis in conjunction with the Item Content Outline a general pattern emerges, indicating the types of test items that students had difficulty getting correctly and those that were relatively easier. There is a general trend for students to do well on items measuring mechanical skills of reading and writing, for example: correct word spelling, knowledge of the rules of capitalization and punctuation, and the literal understanding of words. However, items measuring overall reading comprehension and inferential understanding of paragraphs are generally more difficult. A similar trend appears on those test items measuring arithmetic ability. Students perform well on items assessing knowledge of basic computational mechanics, i.e., addition, subtraction, multiplication, and division. They have much more difficulty on items measuring comprehension of mathematical concepts and ability to use their fundamental arithmetic skills in novel problem solving situations. (See Figure 3.)

In reviewing the item analyses data you will notice also that items at the beginning of the sub-test have higher item analysis percents than those positioned towards the end. This trend is normal and to be expected. It may be explained by

two factors: 1) the test authors generally positioned the items in order of ascending difficulty, and 2) students may run out of time and not complete items near the end of the test. However, the item analysis percent is not based on the number of students attempting the individual item. It is computed by dividing the number of students answering the item correctly by the total number of students taking the sub-test in which the item appears.

PRESENTATION OF THE ITEM ANALYSES AND ITEM CONTENT DESCRIPTIONS

The item analyses and item content descriptions are organized and presented by test level, proceeding from the Primary I to the Advanced battery. A narrative description of each battery is given first, followed by a summary of the item analyses results for the sub-tests and major cur-

TABLE C: Averages of the percent of correct answers for the items in each sub-test of the Stanford Achievement Tests, for hearing impaired students participating in the Achievement Testing Program: Spring 1971

Subtests	Average Percent of Correct Answers[1]				
	Primary I Battery	Primary II Battery	Intermediate I Battery	Intermediate II Battery	Advanced Battery
Word Meaning	*	41	38	37	*
Word Reading	65	*	*	*	*
Paragraph Meaning	51	49	40	45	49
Vocabulary	37	*	*	*	*
Science & Social Studies Concepts	*	39	*	*	*
Spelling	42	50	73	71	62
Word Study Skills	39	33	44	*	*
Language	*	54	57	60	66
Arithmetic	53	*	*	*	*
Arithmetic Computation	*	66	69	59	55
Arithmetic Concepts	*	42	50	44	49
Arithmetic Applications	*	*	46	49	39
Social Studies	*	*	53	53	47
Science	*	*	46	45	50

[1]The average of the percent of correct answers to each item in the sub-test. It is computed by totaling the percent of correct answers for each item in the sub-test and dividing this total by the number of items in the sub-test.

*This sub-test not included within the particular Battery Level.

riculum categories within the sub-test, for the battery. The summaries show the patterning of the average item analyses percents for the sub-tests and their curriculum parts. Following these summaries are the detailed tables giving the item numbers from the test battery, a description of what the item was designed to measure (for some tables the actual questions are given) and the percent of correct answers given to the item by the students that took the sub-test in which the item appears. Some further descriptive data also accompany some of the tables.

SUGGESTED PROCEDURE FOR USING THE ITEM ANALYSIS TABLES

The format presented in Table D gives a procedure for comparing the item analysis data in this report to the item analysis data for individual schools. For illustrative purposes, the academic subject area of verb usage has been chosen. This illustration makes use of the item analyses combined with the item content outlines. It compares the percent of students in a sample school getting verb usage test items correct to the percent of students, on the national level, getting the same items correct. In the examples shown, students in the sample school perform better than the national group on items measuring irregular verb forms, but do poorer on items measuring verb agreement with subject and tenses.

TABLE D: Sample method for using item analysis data showing percent of hearing impaired students answering test items correctly at a sample school and for the nation

Test Battery Level: Intermediate I
Sub-test: Language
Specific Curriculum Area: Usage – Verbs

Items Measuring Irregular Verb Forms				Items Measuring Agreement with Subject				Items Measuring Tenses			
Item Number	National Percent Correct	Sample School Percent Correct	Sample School Difference	Item Number	National Percent Correct	Sample School Percent Correct	Sample School Difference	Item Number	National Percent Correct	Sample School Percent Correct	Sample School Difference
1	67	74	+7	10	63	54	-9	3	64	49	-15
8	59	67	+8	17	30	23	-7	16	24	15	-9
9	69	66	-3	21	67	51	-16	19	48	34	-14
18	27	58	+31	26	56	43	-13	23	33	21	-12
29	27	46	+19					28	10	14	+4
31	37	48	+11					37	16	13	-3
33	27	39	+12								
34	32	30	-2								
35	22	29	+7								
Total	367	457	+90	Total	216	171	-45	Total	195	146	-49
Average Percent[1]	41	51	+10	Average Percent[1]	54	43	-11	Average Percent[1]	32	24	-8

[1]Average percent obtained by adding the item analyses percents in the column and dividing this total by the number of items represented in the column.

SUMMARY

This publication presents the item analyses of approximately 19,000 academic achievement tests administered to students in schools and classes for the hearing impaired. The data were collected in a national achievement testing program conducted by the Annual Survey of Hearing Impaired Children and Youth during the Spring of 1971.

The item analyses are measures of how this student group performed on each test question. They are percent scores and represent the percent of students taking the test who answered each question of the test correctly. They are computed by dividing the total number of students getting each item correct by the total number of students taking the sub-test in which the item is contained. The item analyses percents are shown alongside their respective test questions, or a description of the specific curriculum area the question was designed to measure.

The general qualifications and limitations of the data are discussed along with reliability and validity problems encountered when the Stanford Tests are used with hearing impaired students, a population for which the tests were not designed. Procedures for obtaining the data were reviewed as were suggestions for interpreting and using this information. Item analyses are particularly useful for curriculum planning, evaluating the validity of the test for individual school programs, illuminating student learning patterns, and general educational and test research.

Item Analysis
and
Item Content Description
Stanford Achievement Test
Primary I Battery, Form W-HI

Stanford Achievement Test
Primary I Battery, Form W-HI
Item Analysis and Item Content Description

The Primary I Battery was designed for hearing students in the middle of grade 1 to the end of grade 2. It includes tests of reading, arithmetic and spelling, encompassing the instructional areas given greatest attention in the primary grades. Reading is measured by three sub-tests: Word Reading, Paragraph Meaning and Word Study Skills. Arithmetic is measured by means of one sub-test which contains three parts: Measures, Problem Solving and Number Concepts. Spelling is measured by a dictation-type test. An additional test of Vocabulary is included as a measure of general knowledge.

The table below presents a summary of the item analyses results for major curriculum categories in the Primary I Battery. These results are also summarized in Figure I.

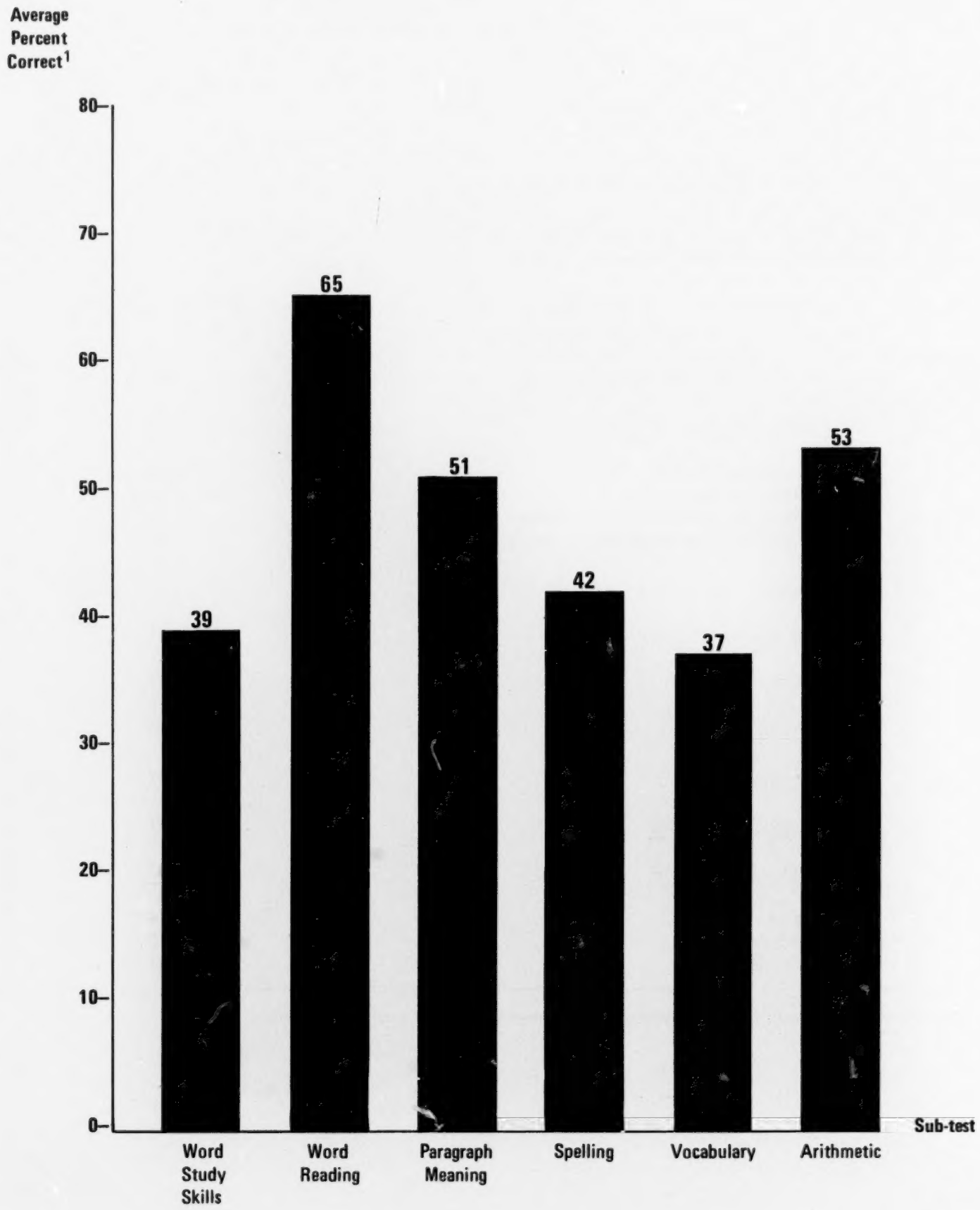
TABLE I: Primary I Battery, Form W-HI, Stanford Achievement Tests, Item Analyses Summary for Students in Schools and Classes for the Hearing Impaired, United States, Spring 1971

Sub-test and Curriculum Topic	Percent of Correct Answers[1]
Word Study Skills – Sub-test Total	39
Matching Initial Sounds	44
Matching Final Sounds	34
Matching Spoken Word with Printed Word	42
Selecting Printed Word that Rhymes with Spoken Word	35
Word Reading – Sub-test Total	65
Paragraph Meaning – Sub-test Total	51
Comprehension	57
Inference	46
Organization	50
Spelling – Sub-test Total	42
Vocabulary – Sub-test Total	37
Arithmetic – Sub-test Total	53
Measures	44
Problem Solving	37
Number Concepts	64

[1]The average of the percent of correct answers to each item in a sub-test or curriculum category.

Primary I Battery (Form W-HI)

FIGURE 1: Primary I Battery, Form W-HI, Stanford Achievement Tests, Item Analyses Summary for Students in Schools and Classes for the Hearing Impaired, United States, Spring 1971



[1]The average of the percent of correct answers to each item in a sub-test or curriculum category.

Tables 1A-D: **Word Study Skills Sub-test**

A primary consideration in evaluating reading ability at the Primary I level is the measurement of reading power and specific instruction. The test designed to measure the detail of specific instruction most closely is Word Study Skills.

NOTE: The Word Study Skills Test depends on a student's ability to make phonetic associations. It appears invalid for hearing impaired students and its results should be viewed with caution.

* *

Table 1A: **Matching Initial Sounds**

In this part a pupil hears one word read by the teacher. Then he reads with the teacher the other words from which he must select one whose beginning sound is the same as the word the teacher read first.

Item Number	Initial Sound	Percent Correct[1]
1	m	63
2	r	55
3	pr	55
4	a	50
5	cl	40
6	wh	47
7	k	47
8	th	48
9	wh	39
10	sh	38
11	br	39
12	n	39
13	s	25
14	e	31

[1]The number of students answering each item correctly divided by the 2,829 students that answered one or more items in the Word Study Skills Sub-test.

Table 1B: **Matching Final Sounds**

For these items, the word to be chosen has the same ending sound as a word which the pupil hears.

Item Number	Initial Sound	Percent Correct[1]
15	ē	36
16	ōld	49
17	ing	43
18	ack	44
19	ēz	37
20	īt	22
21	uch	41
22	um	27
23	ērn	41
24	ēk	27
25	ēt	22
26	ü	31
27	ād	21
28	īm	29

[1]The number of students answering each item correctly divided by the 2,829 students that answered one or more items in the Word Study Skills Sub-test.

Primary I Battery (Form W-HI)

Tables 1A-D: **Word Study Skills Sub-test Continued**

Table 1C: **Matching Spoken Word with Printed Word**

In this part, a pupil must match a word he hears with one of three which he reads.

Item Number	Word Being Matched	Percent Correct[1]
29	meat	52
30	become	48
31	out	54
32	yell	41
33	now	49
34	black	52
35	twin	42
36	broom	42
37	knock	38
38	thanks	48
39	chop	24
40	snail	34
41	crash	33
42	through	38

[1]The number of students answering each item correctly divided by the 2,829 students that answered one or more items in the Word Study Skills Sub-test.

Table 1D: **Selecting Printed Word that Rhymes with Spoken Word**

The pupil chooses a word which rhymes with the word he hears.

Item Number	Rhyming Sound	Percent Correct[1]
43	ang	44
44	est	34
45	al	48
46	ave	47
47	ade	39
48	ite	28
49	ink	30
50	un	28
51	ix	43
52	et	37
53	iest	34
54	o	27
55	ele	25
56	ation	31

[1]The number of students answering each item correctly divided by the 2,829 students that answered one or more items in the Word Study Skills Sub-test.

Table 2: **Word Reading Sub-test**

This test measures the application of word study skills. It is not a measure of sight vocabulary, but a power test of the development of word analysis ability. The pupil must analyze a word without the aid of context.

The test employs a multiple-choice-type item in which the pupils are required to look at a picture and then select the word which stands for the picture from a group of words. For example, a pupil may see a picture of the sun and see the words – "not, him, sun, sit". He must read the words and mark the one which means "sun". In doing this, he responds to more than a single sound element.

Item	Chief Skill Needed			Percent Correct[1]
1. children	ch	vs.	t, g, k (the other options)	82
2. window	w	vs.	h, f, d	90
3. chair	ch	vs.	sh	93
4. rain	-ain	vs.	-an	87
5. ring	r	vs.	f, a, b	89
6. drink	dr	vs.	ē, g, pl	85
7. flag	-ag	vs.	-at	91
8. candy	can-	vs.	car-	86
9. school	sch-	vs.	l, t, l	81
10. ship	sh	vs.	m, bl, l	76
11. horse	-orse	vs.	-ouse	79
12. ice	ice	vs.	is, eyes	85
13. plant	-ant	vs.	-ace, -ease	60
14. shoe	-oe	vs.	-ore	86
15. write	-īte	vs.	-īde, -ain	76
16. peopie	p	vs.	sch, t, ch	64
17. music	m	vs.	o, b, pl	79
18. break	br	vs.	b, eak vs. ead	62
19. build	-ild	vs.	-ill, -uld	50
20. sister	s	vs.	g, b, g-er	73
21. cabin	cab-	vs.	cam-	40
22. nose	-ose	vs.	-oise	77
23. telephone	-phone	vs.	-vision	79
24. rest	-est	vs.	-oof, -ock, -eally	35
25. storm	-orm	vs.	-ong	35
26. point	emphasis in picture			32
27. corner	-orner	vs.	-over	32
28. arm	ar	vs.	dr	50
29. island	-and	vs.	-ant	46
30. study	reach as decoy for read			38
31. hair	-air	vs.	-er, -ear	77
32. team	probable meaning			35
33. ocean	weave	vs.	wave	40
34. earth	earth	vs.	early	58
35. ahead	probable meaning			23

[1]The number of students answering each item correctly divided by the 6,709 students that answered one or more items in the Word Reading Sub-test.

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Table 3: **Paragraph Meaning Sub-test**

Paragraph Meaning is still more complex in its demands than the two previously described tests. The pupil must know the word study skills and apply them or call upon his repertory of sight words. He then usually must relate the content of two or more sentences. A pupil who depends mainly upon word recognition will tend to lose the relationship of the sentences.

The Paragraph Meaning Sub-test was designed to measure three primary objectives:

1. *Comprehension* of what is stated
2. *Inference*, or ability to think beyond the stated content
3. *Organization*, the central idea, main thought, or summation.

Item Number	Classification	Percent Correct[1]
1	Comprehension	69
2	Comprehension	60
3	Comprehension	70
4	Comprehension	70
5	Comprehension	45
6	Inference	56
7	Inference	45
8	Comprehension	67
9	Comprehension	77
10	Organization	54
11	Inference	60
12	Inference	71
13	Inference	36
14	Inference	65
15	Comprehension	63
16	Organization	46
17	Comprehension	70
18	Inference	56
19	Comprehension	51
20	Inference	52
21	Inference	56
22	Comprehension	43
23	Comprehension	57
24	Inference	48
25	Comprehension	52
26	Inference	45
27	Inference	26
28	Inference	54
29	Inference	50
30	Inference	29
31	Comprehension	42
32	Inference	17
33	Inference	33
34	Comprehension	44
35	Inference	27
36	Comprehension	36
37	Inference	56
38	Inference	34

[1]The number of students answering each item correctly divided by the 6,617 students that answered one or more items in the Paragraph Meaning Sub-test.

Table 4: **Spelling Sub-test**

At the Primary I level the Spelling Test employs a dictation-type exercise – one in which the word to be spelled is pronounced by the teacher, an illustrative sentence is read and the word is repeated, whereupon the student writes the word in his test booklet.

NOTE: Due to its method of administration, the Spelling Test lacks face validity for hearing impaired students. The results of this sub-test should be interpreted with caution.

Item Number	Spelling Word	Percent Correct[1]
1	you	64
2	it	44
3	one	62
4	like	51
5	run	55
6	play	57
7	hen	35
8	green	58
9	came	41
10	are	42
11	eats	28
12	was	43
13	that	34
14	of	33
15	last	36
16	live	38
17	far	36
18	just	16
19	fire	43
20	letter	32

[1]The number of students answering each item correctly divided by the 3,179 students that answered one or more items in the Spelling Sub-test.

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Primary I Battery (Form W-HI)

Table 5: **Vocabulary Sub-test**

The Vocabulary Test is designed to measure a pupil's verbal background. The test authors assert that the vocabulary words are not and should not be limited to words of reading textbooks. In order to find words sufficiently difficult to be used in a dictated test, the authors found that vocabulary words formerly measured in a reading context could be moved from grades 4-6 to grades 2-3.

In Form W-HI of this test, the teacher read the items and then instructed the student to read the question in his booklet before marking the answer. The student's task was to choose the word or words which best answered a question or completed a statement.

Item Number	Test Item	Percent Correct[1]	Item Number	Test Item	Percent Correct[1]
1	If I drop a glass plate, it will probably **break** **bounce** **spill**	58	11	To begin is to **carry** **start** **find**	43
2	Cameras are loaded with **tackle** **shot** **film**	51	12	To stitch is to **sew** **steal** **choose**	35
3	When we study we **think** **dream** **wish**	54	13	To repair is to **spend** **fix** **need**	51
4	If a load is hard to lift, it is **small** **valuable** **heavy**	55	14	Above means **clear** **under** **over**	44
5	If a thing is tall, it is **broad** **high** **middle**	58	15	When people look for something, they engage in a **search** **march** **service**	27
6	When you fear that something bad may happen, you are **ashamed** **angry** **worried**	37	16	Something which is making no noise is **stupid** **silent** **strange**	38
7	Two people who own a business together are **relatives** **partners** **tricky**	42	17	An alarm is used to **warn you** **worry you** **fool you**	35
8	An idea is a **picture** **laugh** **thought**	32	18	To command is to **complete** **destroy** **order**	33
9	When one has enough, he has **plenty** **cereal** **several**	28	19	What does a shelter give? **protection** **quiet** **food**	31
10	What does strength mean? **power** **duty** **natural**	37	20	A person who is well liked is **popular** **industrious** **enthusiastic**	40

[1]The number of students answering each item correctly divided by the 5,535 students that answered one or more items in the Vocabulary Sub-test.

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Table 5: **Vocabulary Sub-test Continued**

Item Number	Test Item	Percent Correct[1]	Item Number	Test Item	Percent Correct[1]
21	Something that can't be done is **impossible** **stretched** **unusual**	31	31	When you connect two railroad cars, you **push them** **join them** **run them**	32
22	To get to a place means to **knock** **wait** **arrive**	31	32	The way a person looks is his **conduct** **appearance** **difficulty**	38
23	To be whole is to be **religious** **old** **all together**	41	33	A thing is gigantic if it is **huge** **important** **far away**	27
24	Delighted means **pleased** **unhappy** **beautiful**	24	34	To be sure means to be **glad** **certain** **prepared**	29
25	If one purchases a house, he **sells it** **moves it** **buys it**	30	35	If two things look alike, they are **handsome** **opposite** **similar**	29
26	If your father is given a better job, he is **removed** **promoted** **punished**	37	36	More than half of a group of people is a **majority** **victory** **vote**	25
27	Remain means to **travel** **stay** **sleep**	35	37	If something is small and pretty, it is **lace** **dainty** **golden**	30
28	One raises fruit in **a pasture** **a crate** **an orchard**	36	38	What is a vessel? **a whistle** **a lake** **a boat**	29
29	What does loyal mean? **mighty** **faithful** **famous**	40	39	A bird that people seldom see any more is **afraid** **wild** **rare**	26
30	Things set aside to be used when needed are **food** **medicine** **supplies**	28			

[1]The number of students answering each item correctly divided by the 5,535 students that answered one or more items in the Vocabulary Sub-test.

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Primary I Battery (Form W-HI)

Tables 6A-6C: **Arithmetic Sub-test**

The Arithmetic Test of the Primary I level is divided into 3 sections: Part A: Measures, Part B: Problem Solving and Part C: Number Concepts. Part A deals with the meaning of measurement and a basic knowledge of standard units. The problem solving section evaluates the pupil's ability to do simple computations and to understand the language of problems. Part C measures the understanding of basic number concepts such as place value, number names and unit fractions, as well as simple addition and subtraction facts.

Table 6A: **Measures**

Item Number	Topic Measured	Percent Correct[1]
1	Comparison terms: closest	61
2	Identifying geometric shapes	48
3	Coin values	31
4	Measurement: days & months	44
5	Direction	36
6	Measurement: telling time	53
7	Comparison term: most; money	43
8	Temperature (weather)	46
9	Reading a calendar	65
10	Height concept: inches	40
11	Measures: ounces & pounds	55
12	Coin value & addition	46
13	Measures: cups & quarts	9

[1]The number of students answering each item correctly divided by the 6,542 students that answered one or more items in the Arithmetic Sub-test.

Table 6B: **Problem Solving**

Item Number	Topic Measured	Percent Correct[1]
14	Addition	57
15	Subtraction	53
16	Addition	33
17	Multiplication; money	31
18	Subtraction	37
19	Addition; money	51
20	Addition; money	54
21	Addition	52
22	Multiplication (rate)	31
23	Subtraction	14
24	Addition	58
25	Division (rate); money	41
26	Subtraction	31
27	Subtraction; money	31
28	Division (rate); money	21
29	Multiplication (rate); money	23
30	Subtraction	39
31	Division (rate)	16

[1]The number of students answering each item correctly divided by the 6,542 students that answered one or more items in the Arithmetic Sub-test.

Tables 6A-6C: **Arithmetic Sub-test Continued**

Table 6C: **Number Concepts**

In the item content description below, the letter "d" stands for the number of digits in the computation, e.g. 2d - 1d means 2 digits minus 1 digit (28-8).

Item Number	Topic Measured	Percent Correct[1]
32	Pairing an array of objects with its number name	82
33	Matching a number word with its numeral	86
34	Fraction concept	52
35	Size of numbers	40
36	Meaning of "pair"	27
37	Completing a number sequence	46
38	Writing a numeral	48
39	Place value	46
40	Completing a number sequence	57
41	Completing a number sequence	52
42	Place value	43
43	Place value	17
44	Addition: 1d + 1d	89
45	Addition: 1d + 1d	83
46	Addition: 1d + 1d	81
47	Addition: 1d + 1d + 1d	84
48	Addition: 1d + 1d + 1d	81
49	Addition: 1d + 1d + 1d	78
50	Subtraction: 1d - 0	77
51	Subtraction: 1d - 1d	77
52	Subtraction: 1d - 1d	80
53	Subtraction: 2d - 1d (borrowing)	75
54	Subtraction: 1d - 1d	78
55	Subtraction: 2d - 1d (borrowing)	72
56	Addition: open sentence	82
57	Addition: open sentence	56
58	Addition: open sentence	59
59	Addition: open sentence	58
60	Subtraction: open sentence	77
61	Subtraction: open sentence	73
62	Subtraction: open sentence	67
63	Subtraction: open sentence	38

[1]The number of students answering each item correctly divided by the 6,542 students that answered one or more items in the Arithmetic Sub-test.

Item Analysis
and
Item Content Description
Stanford Achievement Test
Primary II Battery, Form W-HI

Stanford Achievement Test
Primary II Battery, Form W-HI
Item Analysis and Item Content Description

The Primary II Battery is similar to the Primary I in many respects but is designed to reflect the student's progress in reading and a broadening of the school curriculum. This battery is intended for regular school pupils in the middle of grade 2 to the end of grade 3. Reading ability is measured by Word Meaning, Paragraph Meaning and Word Study Skills sub-tests. Arithmetic is measured by two sub-tests, one in Computation and one in Concepts. Sub-tests in Language, Spelling and Science and Social Studies are also included.

A summary of item analyses results for major categories of the Primary II Battery is presented in Table II. These results are also presented in Figure II.

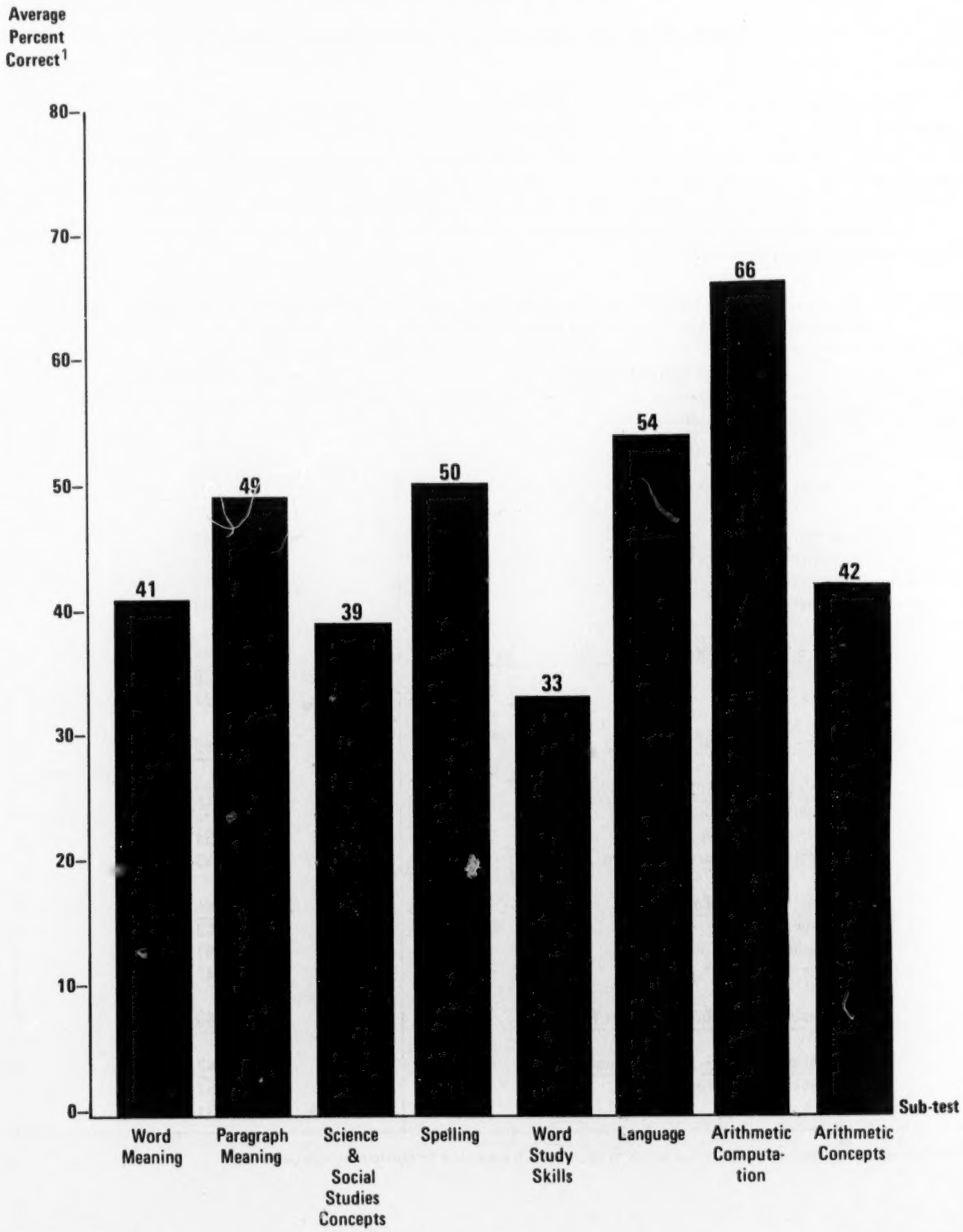
TABLE II: Primary II Battery, Form W-HI, Stanford Achievement Tests, Item Analyses Summary for Students in Schools and Classes for the Hearing Impaired, United States, Spring 1971

Sub-test and Curriculum Topic	Percent of Correct Answers[1]
Word Meaning – Sub-test Total	41
Noun	54
Verb	39
Adjective or Adverb	31
Paragraph Meaning – Sub-test Total	49
Comprehension – Literal	56
Comprehension – Inferential	44
Inference	44
Science & Social Studies Concepts – Sub-test Total	39
Science	40
Social Studies	37
Spelling – Sub-test Total	50
Word Study Skills – Sub-test Total	33
Matching Initial Sounds	33
Matching Final Sounds	34
Matching Graphemes & Phonemes	33
Language – Sub-test Total	54
Capitalization	63
Punctuation	57
Usage	47
Arithmetic Computation – Sub-test Total	66
Arithmetic Concepts – Sub-test Total	42
Numbers & Measures	52
Problem Solving	31

[1]The average of the percent of correct answers to each item in a sub-test or curriculum category.

Primary II Battery (Form W-HI)

FIGURE II: Primary II Battery, Form W-HI, Stanford Achievement Tests, Item Analyses Summary for Students in Schools and Classes for the Hearing Impaired, United States, Spring 1971



[1]The average of the percent of correct answers to each item in a sub-test or curriculum category.

Table 7: **Word Meaning Sub-test**

This test measures the ability of a pupil to read a sentence and to select a correct word to complete the sentence. There is a shift in structure from the Primary I to the Primary II Battery, from a word reading test to a word meaning test. The emphasis of the Word Reading Test is decoding, whereas the Word Meaning Test of the Primary II requires some decoding, but also measures the meaning of words.

Item Number	Test Item	Percent Correct[1]
1	When a girl grows up, she becomes a **father sister son woman**	78
2	A man who flies an airplane is a **postman cowboy fireman pilot**	87
3	To sweep a floor, you would use a **broom mop comb curtain**	78
4	A page is a part of a **play poem book party**	87
5	A very small piece of bread is called a **cake ball cut crumb**	48
6	We use a pencil to **write smoke drink dress**	97
7	One who is rich is **rapid not poor brave not selfish**	48
8	When someone lends you a pen, you **lose it buy it borrow it break it**	57
9	If a box has nothing in it, it is **empty large heavy open**	64
10	A pail is another name for **a seat a jar a bucket stairs**	60
11	A person who visits your house is your **daughter enemy brother guest**	34
12	When you say the same thing more than once, you **repeat it copy it forget it taste it**	35
13	One who is honest tells the **cause truth news time**	58
14	If you capture a rabbit, you **hurt it kill it tease it catch it**	60
15	A diamond is **dull precious dirty brass**	53
16	There are sixteen ounces in a **pound foot sack inch**	54
17	The exact middle of something is called its **edge side center top**	53
18	Something which does not cost much is said to be **lovely poor cheap valuable**	38
19	To do something right away is to do it **wrong immediately steadily backward**	26
20	Something which is hard to believe is **common amazing untrue clear**	31
21	To destroy something is to **praise it defend it develop it ruin it**	24
22	To glance is to **swim dash look fear**	20
23	To dine is to **cash die play eat**	17
24	An object which is standing still is **heavy large secure motionless**	35
25	When you gain weight, you **decrease increase lose remain**	17
26	A small round stone is called a **brick rock pebble mill**	20
27	A common cold is quite **ordinary unusual good pretty**	30
28	If you are not timid, you are **mean polite brave cold**	31

Continued on next page.

[1]The number of students answering each item correctly divided by the 6,598 students that answered one or more items in the Word Meaning Sub-test.

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Primary II Battery (Form W-HI)

Table 7: **Word Meaning Sub-test Continued**

Item Number	Test Item	Percent Correct[1]	Item Number	Test Item	Percent Correct[1]
29	To injure is to **encourage help hinder hurt**	23	33	If your hands are bound, they are **dirty tied small strong**	11
30	When there is very little to eat, food is **scarce poor plentiful abundant**	12	34	If you go to the movies frequently, you go **seldom often alone once in a while**	15
31	To loosen the ground around the plants in your garden, you might use **a sprayer an elevator a captivator a cultivator**	18	35	A man who sings with a low, deep voice is called a **bass soprano contralto tenor**	26
32	When something expands, it becomes **smaller round bigger soft**	34	36	If a park is convenient, it is **handy large crowded closed**	10

[1]The number of students answering each item correctly divided by the 6,598 students that answered one or more items in the Word Meaning Sub-test.

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Table 8: **Paragraph Meaning Sub-test**

The primary goal of the Paragraph Meaning Test is comprehension, both explicit and implicit. The three categories that have been used to classify the items are:

1. Comprehension – literal: the essentials required for the answers are contained in the paragraph.
2. Comprehension – inferential: while most of the essentials are found in the material, some conclusions must be drawn from the cues provided.
3. Inference: requires something beyond the material. The cues are not as obvious as those in the "comprehension-inferential" category.

Item Number	Topic Measured	Percent Correct[1]	Item Number	Topic Measured	Percent Correct[1]
1	Comprehension – literal	94	31	Comprehension – literal	22
2	Comprehension – literal	71	32	Comprehension – literal	38
3	Comprehension – inferential	86	33	Comprehension – inferential	21
4	Comprehension – inferential	28	34	Inference	71
5	Inference	91	35	Comprehension – inferential	53
6	Inference	74	36	Comprehension – inferential	36
7	Comprehension – literal	76	37	Comprehension – inferential	30
8	Comprehension – literal	64	38	Inference	29
9	Inference	74	39	Comprehension – inferential	21
10	Inference	83	40	Comprehension – inferential	39
11	Comprehension – literal	56	41	Comprehension – literal	42
12	Inference	51	42	Comprehension – literal	46
13	Comprehension – literal	73	43	Inference	27
14	Comprehension – inferential	62	44	Inference	22
15	Comprehension – literal	64	45	Comprehension – literal	50
16	Comprehension – inferential	78	46	Comprehension – literal	49
17	Comprehension – inferential	84	47	Comprehension – literal	27
18	Comprehension – literal	57	48	Comprehension – literal	12
19	Comprehension – literal	49	49	Comprehension – inferential	14
20	Comprehension – literal	60	50	Inference	37
21	Comprehension – inferential	56	51	Comprehension – inferential	22
22	Comprehension – literal	77	52	Inference	40
23	Inference	67	53	Inference	22
24	Inference	74	54	Inference	29
25	Comprehension – inferential	52	55	Inference	36
26	Comprehension – literal	36	56	Inference	10
27	Comprehension – literal	81	57	Inference	9
28	Comprehension – literal	75	58	Inference	22
29	Comprehension – literal	83	59	Comprehension – inferential	19
30	Comprehension – literal	46	60	Inference	18

[1]The number of students answering each item correctly divided by the 6,597 students that answered one or more items in the Paragraph Meaning Sub-test.

Primary II Battery (Form W-HI)

Tables 9A and 9B: **Science and Social Studies Concepts**

This test employs a multiple-choice type of item in which the pupil is required to select the proper response to a question or a statement, from a series of three alternatives. Items measure knowledge of synonyms, simple definitions, ready associations, comprehension of concepts represented by words, and fullness of understanding of terms.

Table 9A: **Science**

Item Number	Topic Measured	Percent Correct[1]
1	Life Science	68
2	Life Science	57
3	Earth Science	47
4	Scientific Principle	55
5	Weather	35
6	Life Science	28
7	Mechanical Term	37
8	Scientific Principle	44
9	Mechanical Principle	40
10	Earth Science	46
11	Life Science	32
12	Earth Science	31
13	Scientific Term	39
14	Mechanical Principle	30
15	Life Science	43
16	Physical Science	35
17	Life Science	38
18	Mechanical Principle	30
19	Life Science	33

[1]The number of students answering each item correctly divided by the 5,925 students that answered one or more items in the Science and Social Studies Concepts Sub-test.

Table 9B: **Social Studies**

Item Number	Topic Measured	Percent Correct[1]
20	Commerce	42
21	History Term	53
22	History: pioneer living	45
23	Occupation	38
24	Scientific Principle	37
25	Civics	44
26	Industry	59
27	Agriculture	29
28	History	40
29	Business Term	48
30	History	60
31	Scientific Term	30
32	Committee Organization	13
33	Civics	16
34	Inventor (Name of)	26
35	Geography	28
36	Geography	49
37	Transportation	32
38	Finance	23

[1]The number of students answering each item correctly divided by the 5,925 students that answered one or more items in the Science and Social Studies Concepts Sub-test.

Table 10: **Spelling Sub-test**

Spelling ability is measured by a dictation-type test. The spelling word is pronounced by the teacher, an illustrative sentence is read, and the word is repeated. The pupil then writes the word in his booklet. The frequency of word use in written form by children in the primary grades was the main criterion for selecting words in the Spelling Test.

As this is a dictated sub-test, its method of administration appears invalid for hearing impaired students. Item analyses of results are to be used with these qualifications in mind.

Item Number	Spelling Word	Percent Correct[1]
1	green	77
2	eats	38
3	are	69
4	from	72
5	they	64
6	told	56
7	very	71
8	tie	68
9	buy	65
10	wash	66
11	better	60
12	also	44
13	few	54
14	such	28
15	front	54
16	shirt	56
17	guess	33
18	thought	38
19	flood	30
20	orange	60
21	slowly	45
22	wrong	54
23	grapes	36
24	everybody	49
25	turned	26
26	dollar	52
27	family	60
28	answer	30
29	decided	14
30	excuse	17

[1]The number of students answering each item correctly divided by the 2,534 students that answered one or more items in the Spelling Sub-test.

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Primary II Battery (Form W-HI)

Tables 11A-C: **Word Study Skills Sub-test**

This sub-test includes 64 multiple-choice items broken down into Part A: Beginning and Ending Sounds, and Part B: Visual Phonics. This test appears to lack validity for hearing impaired students, and the item analysis should be interpreted with caution.

* *

Tables 11A & B: **Beginning and Ending Sounds (Matching Initial and Final Sounds)**

The pupil listens to one word read by the teacher. Then he reads silently as the teacher reads aloud four other words from which he must select one whose beginning, or ending, sound is the same as the teacher read first.

Table 11A: **Matching Initial Sounds**

Item Number	Phoneme	Grapheme		Percent Correct[1]
		Stimulus	Answer	
1	ûr	ear	ear	53
2	d	d	d	41
3	ôr	or	or	46
4	oi	oi	oy	26
5	fər	for	for	39
6	hw	wh	wh	46
7	i	i	i	38
8	tr	tr	tr	36
9	k	k	c	15
10	sûr	cir	ser	22
11	är	ar	ar	33
12	par	par	par	42
13	sh	ch	sh	8
14	ē	ea	ea	29
15	bə	ba	ba	14

[1]The number of students answering each item correctly divided by the 2,350 students that answered one or more items in the Word Study Skills Sub-test.

Table 11B: **Matching Final Sounds**

Item Number	Phoneme	Grapheme		Percent Correct[1]
		Stimulus	Answer	
16	rt	rt	rt	55
17	âr	air	air	57
18	ī	uy	igh	28
19	ü	ue	ough	45
20	lē	lly	ly	44
21	st	st	st	44
22	d	d	d	30
23	ər	er	er	39
24	j	g	dg	37
25	üt	oot	uit	20
26	ld	ld	led	28
27	f	f	gh	17
28	z	s	se	18
29	ənz	ence	ence	24
30	k	k	lk	24

[1]The number of students answering each item correctly divided by the 2,350 students that answered one or more items in the Word Study Skills Sub-test.

Tables 11A-C: **Word Study Skills Sub-test Continued**

Table 11C: **Visual Phonics (Matching Graphemes and Phonemes)**

These items require the matching of the same sound in different words, the focus on sound sharpened by the use of different spellings of the sound, as the sound of long *U* in *music* and *few*. Most of the more common variant spellings of the vowels and of those consonants which have variants, such as f, k, j, s, and sh are included.

Item Number	Phoneme	Grapheme		Percent Correct[1]
		Stimulus	Answer	
31	ī	y	y	56
32	ī	i-e	i-e	49
33	o	o	o	34
34	oi	oi	oy	37
35	a	a	a	50
36	ə	a	a	30
37	yü	u-e	u	51
38	sh	sh	sh	62
39	ō	o	o	37
40	ē	ee	ea	33
41	ou	ou	ow	35
42	ō	oa	ow	34
43	e	e	e	43
44	ou	ou	ou	58
45	ûr	ir	ir	50
46	ô	aw	a	27
47	ē	e	e	28
48	ou	ow	ow	33
49	ē	y	y	18
50	t	d	t	15
51	j	j	g	30
52	ē	ie	ie	39
53	ü	oo	wo	35
54	k	c	k	30
55	ā	ai	a-e	19
56	j	dg	j	19
57	ü	ou	oo	16
58	u	u	u	23
59	o͞o	ew	ou	52
60	ē	ea	ee	22
61	u	u	o	15
62	s	c	s	8
63	f	gh	f	16
64	i	y	i	12

[1]The number of students answering each item correctly divided by the 2,350 students that answered one or more items in the Word Study Skills Sub-test.

Primary II Battery (Form W-HI)

Tables 12A-C: **Language Sub-test**

Table 12A: **Capitalization**

In the Capitalization test (items 1-20), the student decides whether the underlined word in a paragraph should be capitalized.

Item Number	Capitalization Rule	Percent Correct[1]
1	Name of a month	95
2	Title of organization	42
3	Title of organization	87
4	Title of organization	85
5	First word in sentence	73
6	Title of organization	69
7	Title of organization	49
8	Common noun, middle of sentence	48
9	Person's name (first)	88
10	Person's name (last)	73
11	Nationality	67
12	Name of a city	64
13	Common noun, end of sentence	65
14	First word in a sentence	20
15	Common noun, middle of sentence	68
16	First word in sentence	38
17	First word of quotation	42
18	Adjective, middle of sentence	63
19	Common noun, end of sentence	68
20	Abbreviation for name of a country	58

[1]The number of students answering each item correctly divided by the 6,466 students that answered one or more items in the Language Sub-test.

Table 12B: **Punctuation**

For the Punctuation section (items 21-40), the student decides what mark of punctuation, if any, is needed after each underlined word in a paragraph.

Item Number	Punctuation Required	Percent Correct[1]
21	None required: in street address	47
22	Comma: separating city and state	57
23	Comma: in date	89
24	None required: after date	42
25	Comma: after salutation in social letter	68
26	Question mark	52
27	None required: between subject and verb	64
28	Period: end of sentence	65
29	Comma: separating phrase	22
30	Period: end of sentence	62
31	Period: abbreviation	69
32	Comma: separating phrase	36
33	Comma: separating phrase	18
34	Comma: separating words in a series	70
35	Comma: separating two words in apposition	59
36	Period: end of sentence	57
37	Question mark	66
38	None required: between adjective and noun	66
39	Comma: after complimentary close in a letter	71
40	None required: after signature	60

[1]The number of students answering each item correctly divided by the 6,466 students that answered one or more items in the Language Sub-test.

Tables 12A-C: **Language Sub-test Continued**

Table 12C: **Usage**

These items (41-75) are concerned with verb forms, pronouns, errors between adverbs and adjectives, comparative and superlative forms of adjectives, double negatives, and word choices (or diction). The student must decide which, if either, of the choices is correct to complete a sentence. If neither choice is correct, the student fills in the space under N (neither).

Sample: Joe 1 set / 2 sat in the chair. — 1 ○ 2 ● N ○

Item Number	Test Item	Percent Correct[1]	Item Number	Test Item	Percent Correct[1]
41	Do you 1 know / 2 no when Dad is coming home?	86	54	Jack 1 brang / 2 brung his baseball and bat.	36
42	Janet and I walked 1 by / 2 buy the candy store.	40	55	Mary, why 1 was / 2 were you absent yesterday?	42
43	1 My aunt, she / 2 My aunt bought us some ice cream.	69	56	Why has he 1 done / 2 did this?	38
44	Be sure to 1 write / 2 right your name on the paper.	86	57	Those two boys 1 ain't / 2 wasn't in school today.	45
45	Is the lady coming to 1 are / 2 our house?	73	58	1 Daddy and me / 2 Me and Daddy went swimming yesterday.	21
46	My little brother 1 doesn't / 2 don't talk yet.	38	59	1 Are / 2 Is there any cows on the farm?	64
47	I 1 seen / 2 saw your sister this morning.	75	60	The clowns 1 wasn't / 2 weren't in the parade today.	51
48	Didn't you 1 hear / 2 here Mother call us?	74	61	Bill and his sister 1 haven't / 2 hasn't been here.	49
49	1 Leave / 2 Let me borrow your bike.	71	62	Jeff 1 has growed / 2 growed tall since last summer.	13
50	Did they 1 given / 2 gave you a balloon yet?	21	63	Mother 1 has begun / 2 begun to get lunch.	36
51	The children 1 drew / 2 drawed pictures in class.	48	64	The elephant 1 has took / 2 took my bag of peanuts.	71
52	Dick didn't find 1 anything / 2 nothing in the cellar.	52	65	John would never have 1 eat / 2 ate the cake.	16
53	1 My brothers, they / 2 My brothers play ball after school.	71	66	Miss Jones has 1 teached / 2 learned us how to read.	11

Continued on next page.

[1]The number of students answering each item correctly divided by the 6,466 students that answered one or more items in the Language Sub-test.

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Primary II Battery (Form W-HI)

Tables 12A-C: **Language Sub-test Continued**

Table 12C: **Usage Continued**

Item Number	Test Item	Percent Correct[1]	Item Number	Test Item	Percent Correct[1]
67	We haven't 1 ever / 2 never played cowboys.	28	71	1 Her and I / 2 Her and me are going to have lunch.	24
68	Fred has 1 came / 2 come early.	45	72	Tom walks 1 to / 2 too slow to keep up with us.	55
69	Did the children play 1 good / 2 well together?	32	73	1 Isn't / 2 Aren't Jim and Ann going to the zoo?	53
70	Why 1 weren't / 2 wasn't Sue and Jane at the party?	46	74	Dick has never 1 rode / 2 ridden in an airplane.	41
			75	Jane has 1 runned / 2 ran into the house.	19

[1]The number of students answering each item correctly divided by the 6,466 students that answered one or more items in the Language Sub-test.

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Table 13: **Arithmetic Computation Sub-test**

This test contains 60 free-response items in addition, subtraction, multiplication and division. Items 1-37 are designed primarily for the end of grade 2 and for early fall testing in grade 3. Pupils at the end of grade 3 will be measured adequately with the entire 60 items. The multiplication and division facts are restricted to the sixes and below with reverses as 6 x 9 and 9 x 6.

In the item content description below, the letter "d" stands for the number of digits in the computation, e.g. 2d – 1d means 2 digits minus 1 digit (28-8). Items followed by an asterisk (*) involve regrouping (borrowing or carrying).

Item Number	Topic Measured	Percent Correct[1]	Item Number	Topic Measured	Percent Correct[1]
1	Subtraction: 1d – 1d	98	31	Subtraction: 3d – 2d*	64
2	Subtraction: 2d – 1d*	91	32	Subtraction: 3d – 2d*	64
3	Subtraction: 2d – 1d*	92	33	Addition: 3d + 3d*	74
4	Subtraction: 2d – 1d*	90	34	Addition: 3d + 3d + 2d*	62
5	Subtraction: 2d – 1d*	89	35	Subtraction: 3d – 2d*	48
6	Subtraction: 2d – 1d*	90	36	Subtraction: 4d – 3d*	41
7	Addition: Open Sentence	93	37	Addition: 3d + 3d + 4d*	49
8	Subtraction: Open Sentence	88	38	Multiplication: Open Sentence	71
9	Addition: 2d + 2d	89	39	Division: Open Sentence	54
10	Addition: 2d + 2d	93	40	Multiplication: Open Sentence	60
11	Addition: 2d + 2d	90	41	Division: Open Sentence	46
12	Addition: Open Sentence*	81	42	Multiplication: 3d x 1d*	53
13	Subtraction: 2d – 2d	91	43	Division: 3d ÷ 1d	46
14	Subtraction: 2d – 2d	91	44	Multiplication: 3d x 1d*	55
15	Subtraction: 2d – 2d	92	45	Division: 3d ÷ 1d	45
16	Subtraction: Open Sentence*	87	46	Multiplication: 3d x 1d*	54
17	Addition: 1d + 1d + 1d + 1d	87	47	Division: 3d ÷ 1d	43
18	Addition: 1d + 1d + 1d + 1d	87	48	Multiplication: 3d x 1d*	51
19	Addition: 1d + 1d + 1d + 1d	85	49	Division: 3d ÷ 1d	43
20	Addition: 1d + 1d + 1d + 1d	84	50	Multiplication: 3d x 1d*	47
21	Addition: Open Sentence*	81	51	Division: 3d ÷ 1d	45
22	Addition: Open Sentence*	81	52	Multiplication: Open Sentence*	47
23	Addition: Open Sentence*	81	53	Division: Open Sentence*	30
24	Addition: Open Sentence*	80	54	Multiplication: Open Sentence*	41
25	Addition: Open Sentence*	82	55	Division: Open Sentence*	30
26	Addition: Open Sentence*	73	56	Division: 3d ÷ 1d*	35
27	Subtraction: 3d – 2d*	61	57	Multiplication: 3d x 1d*	40
28	Subtraction: 3d – 2d*	63	58	Division: 3d ÷ 1d*	34
29	Subtraction: 3d – 2d*	64	59	Multiplication: 3d x 1d*	35
30	Subtraction: 3d – 2d*	63	60	Division: 3d ÷ 1d*	34

[1]The number of students answering each item correctly divided by the 6,566 students that answered one or more items in the Arithmetic Computation Sub-test.

Primary II Battery (Form W-HI)

Tables 14A & B: **Arithmetic Concepts Sub-test**

The Arithmetic Concepts test consists of two parts, Part A: Numbers and Measures (items 1-24); and Part B: Problem Solving (items 25-46). In Part A, the concepts tested at the Primary I level are extended to include the reading of simple graphs, reading and writing the numerals for greater numbers, knowledge of more precise units of measure, extension of place-value concepts, and some acquaintance with common fractions. Part B: Problem Solving, assesses skill in the language of measures, of social transactions, and of mathematical operations. Ability to read a chart is introduced.

Table 14A: **Numbers and Measures**

Item Number	Topic Measured	Percent Correct[1]
1	Money: Multiple of coins	42
2	Reading a graph	92
3	Measurement of heat	56
4	Geometric shapes	46
5	Counting dots; knowledge of left and right	28
6	Reading a clock	66
7	Using a calendar	85
8	Measurement: pounds and ounces	28
9	Measurement: inches	35
10	Money: combining coins	48
11	Finding the smallest number	81
12	Writing a three place numeral for number name	69
13	Writing a four place numeral for number name	44
14	Completing number series	63
15	Extending number series – subtraction	83
16	Completing number series	68
17	Completing number series	68
18	Roman numeral	42
19	Place value	21
20	Pairing a numeral with its number name	41
21	Pairing number name with its numeral	38
22	Place value	34
23	Extending number series – fractions	53
24	Fraction concept	13

[1]The number of students answering each item correctly divided by the 6,507 students that answered one or more items in the Arithmetic Concepts Sub-test.

Tables 14A & B: **Arithmetic Concepts Sub-test Continued**

Table 14B: **Problem Solving**

Item Number	Topic Measured	Percent Correct[1]
25	Addition	54
26	Subtraction	36
27	Addition; money	77
28	Rate; fraction	31
29	Subtraction	31
30	Subtraction	46
31	Subtraction	20
32	Rate (multiplication)	54
33	Division; money	16
34	Multiplication	26
35	Addition	60
36	Rate (multiplication)	29
37	Subtraction; measurement, inches	22
38	Division; money	18
39	Reading a chart	27
40	Reading a chart	11
41	Division	20
42	Division (rate)	32
43	Two-step problem (addition & subtraction)	15
44	Division (rate)	28
45	Multiplication – arithmetic sentence used	9
46	Multiplication (rate) – fraction – money	23

[1]The number of students answering each item correctly divided by the 6,507 students that answered one or more items in the Arithmetic Concepts Sub-test.

Item Analysis
and
Item Content Description
Stanford Achievement Test
Intermediate I Battery, Form W

Stanford Achievement Test
Intermediate I Battery, Form W
Item Analysis and Item Content Description

The Intermediate I Battery is designed for use in grades 4 through the middle of grade 5. It measures reading, arithmetic, language, spelling, social studies, science, and word study skills.

All items in this battery are of multiple-choice type. No test questions were dictated. The student read the question in his booklet, judged among the multiple alternatives for the correct answer, and recorded his response on a machine scorable sheet. Table III summarizes the item analyses results for the Intermediate I Battery. This summary is also depicted in Figure III.

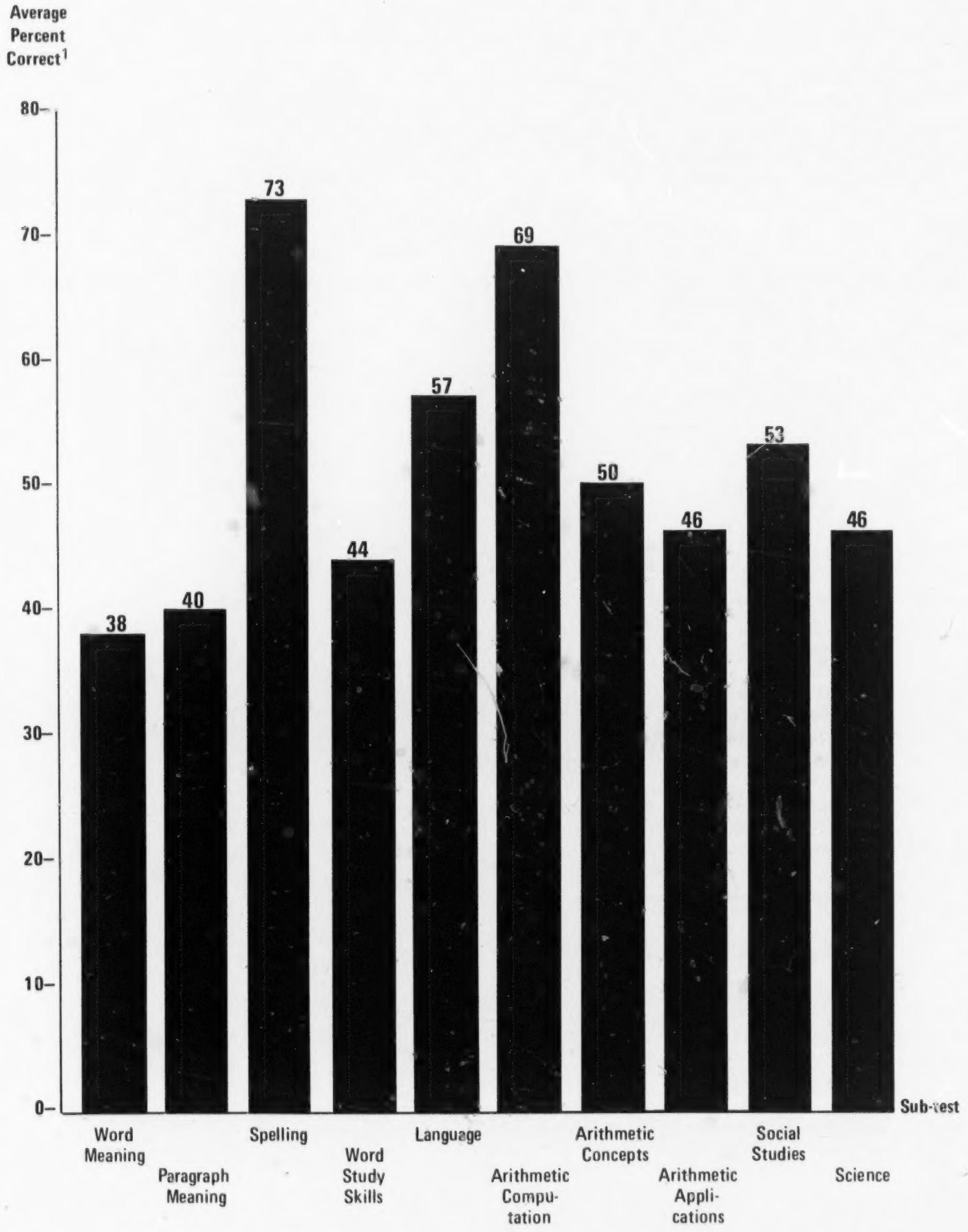
TABLE III: Intermediate I Battery, Form W, Stanford Achievement Tests, Item Analyses Summary for Students in Schools and Classes for the Hearing Impaired, United States, Spring 1971

Sub-Test and Curriculum Topic	Percent of Correct Answers[1]
Word Meaning – Sub-test Total	38
Paragraph Meaning – Sub-test Total	40
Comprehension – Literal	51
Comprehension – Inferential	34
Inference	37
Spelling – Sub-test Total	73
Word Study Skills – Sub-test Total	44
Language – Sub-test Total	57
Usage	48
Punctuation	53
Capitalization	79
Dictionary Skills	35
Sentence Sense	50
Arithmetic Computation – Sub-test Total	69
Whole Numbers	72
Fractions	57
Arithmetic Concepts – Sub-test Total	50
Arithmetic Applications – Sub-test Total	46
Social Studies – Sub-test Total	53
Content	44
Study Skills	60
Science – Sub-test Total	46

[1] The average of the percent of correct answers to each item in a sub-test or curriculum category.

Intermediate I Battery (Form W)

FIGURE III: Intermediate I Battery, Form W, Stanford Achievement Tests, Item Analyses Summary for Students in Schools and Classes for the Hearing Impaired, United States, Spring 1971



[1] The average of the percent of correct answers to each item in a sub-test or curriculum category.

Table 15: **Word Meaning Sub-test**

This test measures knowledge of synonyms, simple definitions, ready associations, higher level comprehension of the concepts represented by words, and fullness of understanding of terms. Selection of words for this test was based on the frequency of occurrence of the words in pupils' usage and in material which they read.

Item Number	Test Item	Percent Correct[1]
1	When you do a job just right, you do it – **silently** **slowly** **quickly** **perfectly**	62
2	When you pardon, you – **dislike** **excuse** **hurt** **blame**	70
3	Carpenters work mostly with – **lead** **plastic** **iron** **wood**	66
4	You write with a – **hoe** **pen** **pin** **tray**	98
5	A sparkling diamond is a – **mirror** **metal** **jewel** **pearl**	78
6	The size of a farm is measured in – **acres** **feet** **miles** **yards**	65
7	When you are astonished, you are – **angry** **fooled** **amazed** **sorry**	40
8	To attempt is to – **stop** **joke** **try** **finish**	40
9	A magnet is used to – **turn** **attract** **bounce** **burn**	62
10	An incredible statement is – **scientific** **pleasant** **unbelievable** **nasty**	34
11	A wealthy person is – **friendly** **injured** **rich** **crafty**	55
12	If you are doubtful, you are – **proud** **unsure** **surprised** **sorrowful**	30
13	The man who is the religious head of a church is sometimes called the – **pastor** **caretaker** **manager** **chairman**	51
14	A hoarse voice is – **funny** **smooth** **loud** **rough**	34
15	An instrument used to determine direction is a – **compass** **caliper** **barometer** **kilometer**	53
16	Something solid is not – **soft** **heavy** **large** **strong**	42
17	A group of sheep is called a – **mass** **crowd** **school** **flock**	58
18	A nuisance is – **annoying** **necessary** **nice** **stimulating**	19
19	A ditch formed by running water is called a – **rut** **gully** **crevasse** **corridor**	31
20	If you are gratified, you are – **pleased** **stubborn** **brave** **bored**	29
21	When the boy faltered in his speech, he – **hesitated** **departed** **drawled** **pleaded**	27
22	Very bright sunlight may cause you to – **be pale** **be afraid** **squint** **squirm**	32

Continued on next page.

[1]The number of students answering each item correctly divided by the 3,204 students that answered one or more items in the Word Meaning Sub-test.

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Intermediate I Battery (Form W)

Table 15: Word Meaning Sub-test Continued

Item Number	Test Item	Percent Correct[1]
23	The path of an electric current is called the – **bulb** **circuit** **joint** **wire**	27
24	To seek is to – **find** **settle** **see** **search**	25
25	A line passing through the center of a circle and with its ends on the circle is called a – **radius** **diameter** **diamond** **diagonal**	43
26	A courteous person is one who is – **playful** **cautious** **polite** **careful**	46
27	To walk aimlessly is to – **creep** **scramble** **scurry** **wander**	25
28	When you are regretful, you are – **happy** **rude** **slow** **sorry**	20
29	You are a mimic when you – **bluff** **menace** **imitate** **relax**	22
30	When a person is unable to move, as if held by magic, he is – **awkward** **spellbound** **listless** **tiresome**	30
31	A dazzling light is – **blinking** **dim** **brilliant** **distant**	21
32	A person who prepares leather from the skins of animals is called a – **veterinarian** **hunter** **game warden** **tanner**	18
33	A person who speaks with a slow, lengthened tone – **drawls** **stutters** **chatters** **shrieks**	14
34	To wither is to – **run** **wander** **wish** **dry**	13
35	A ridiculous situation is – **pitiful** **miserable** **hopeless** **absurd**	13
36	When you are a spectator, you – **practice** **watch** **sail** **inspect**	25
37	Molten iron is – **liquid** **black** **hard** **cold**	20
38	To protest is to – **challenge** **embarrass** **object** **protect**	15

[1]The number of students answering each item correctly divided by the 3,204 students that answered one or more items in the Word Meaning Sub-test.

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Table 16: **Paragraph Meaning Sub-test**

The Paragraph Meaning Test consists of a series of paragraphs graduated in difficulty. One or more words have been omitted from each paragraph. The pupil's task is to demonstrate his comprehension of the paragraph by selecting the proper word for each omission from four choices that are afforded him.

The three categories that have been used to classify the items are:

1. Comprehension – literal: the essentials required for the answers are contained in the paragraph.
2. Comprehension – inferential: while most of the essentials are found in the material, some conclusions must be drawn from the cues provided.
3. Inference: requires something beyond the material. The cues are not as obvious as those in the "comprehension-inferential" category.

Item Number	Classification	Percent Correct[1]	Item Number	Classification	Percent Correct[1]
1	Comprehension – literal	61	31	Comprehension – literal	66
2	Comprehension – inferential	46	32	Comprehension – literal	78
3	Comprehension – inferential	16	33	Comprehension – literal	49
4	Comprehension – literal	44	34	Comprehension – inferential	68
5	Comprehension – inferential	13	35	Comprehension – literal	42
6	Comprehension – literal	51	36	Inference	38
7	Comprehension – literal	33	37	Comprehension – literal	32
8	Comprehension – literal	80	38	Inference	25
9	Comprehension – literal	62	39	Comprehension – inferential	54
10	Inference	66	40	Inference	30
11	Comprehension – inferential	47	41	Inference	35
12	Comprehension – inferential	36	42	Comprehension – inferential	43
13	Comprehension – literal	32	43	Comprehension – inferential	10
14	Comprehension – literal	44	44	Comprehension – inferential	38
15	Comprehension – literal	57	45	Comprehension – inferential	21
16	Comprehension – literal	62	46	Comprehension – inferential	16
17	Comprehension – literal	49	47	Comprehension – inferential	43
18	Comprehension – inferential	35	48	Comprehension – inferential	41
19	Comprehension – inferential	81	49	Comprehension – inferential	25
20	Comprehension – literal	40	50	Inference	25
21	Comprehension – inferential	26	51	Comprehension – literal	51
22	Comprehension – inferential	54	52	Comprehension – inferential	29
23	Comprehension – inferential	23	53	Comprehension – literal	47
24	Inference	44	54	Comprehension – literal	36
25	Inference	53	55	Comprehension – inferential	12
26	Inference	23	56	Inference	28
27	Inference	31	57	Comprehension – inferential	18
28	Comprehension – inferential	75	58	Comprehension – inferential	13
29	Inference	44	59	Comprehension – inferential	15
30	Comprehension – inferential	29	60	Comprehension – inferential	30

[1]The number of students answering each item correctly divided by the 3,204 students that answered one or more items in the Paragraph Meaning Sub-test.

Intermediate I Battery (Form W)

Table 17: **Spelling Sub-test**

The test consists of multiple-choice items in which the pupil chooses from four words the one which was spelled incorrectly. Nearly all of the words on this test are within the first 5,000 words in children's usage.

Sample: A 1. poem 2. tardy 3. replie 4. village A 1 2 3 4

Item Number	Misspelled Word	Percent Correct[1]	Item Number	Misspelled Word	Percent Correct[1]
1	gatherd	86	26	inocent	77
2	dremed	85	27	colection	57
3	packege	81	28	heavey	84
4	worng	91	29	autum	86
5	lafing	88	30	truely	70
6	bord	89	31	offerred	67
7	ascape	89	32	liebility	61
8	flud	91	33	preasent	74
9	slowely	89	34	avalable	50
10	wate	87	35	cryed	83
11	adress	92	36	visting	57
12	kichen	92	37	slippry	80
13	slideing	79	38	realy	78
14	allthough	80	39	begining	51
15	replie	85	40	possable	49
16	screemed	71	41	dimond	72
17	westren	84	42	sholders	57
18	doller	89	43	listend	56
19	everbody	84	44	sevral	68
20	hoby	84	45	appeard	53
21	minuts	85	46	continuelly	31
22	peice	87	47	favorate	31
23	dich	91	48	desided	53
24	suposed	85	49	foriegn	46
25	developped	48	50	carring	45

[1]The number of students answering each item correctly divided by the 3,113 students that answered one or more items in the Spelling Sub-test.

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Tables 18A & B: **Word Study Skills Sub-test**

The Word Study Skills Test is in two parts – Part A: Phonics (items 1-36) and Part B: Syllabication (items 37-61). As this test depends on students' familiarity with sound and phonetics, it does not appear valid for hearing impaired students. The Annual Survey left the decision to administer this test to the individual schools participating in the achievement testing program.

* *

Table 18A: **Phonics**

This test measures the ability to use phonic patterns in word recognition. The student reads a word in which a letter or letters has been underlined. He then chooses, from three alternatives, a word containing the same sound as the underlined letter or letters.

Sample: A ride

1. sick 2. fine 3. wish A 1 ○ 2 ● 3 ○

Item Number	Test Item			Percent Correct[1]	Item Number	Test Item			Percent Correct[1]
1	**my**				11	**tall**			
	many	eye	you	65		tame	two	draw	76
2	**yellow**				12	**throw**			
	say	daddy	young	70		hope	who	flower	28
3	**not**				13	**sugar**			
	shout	shot	short	79		ship	match	sun	36
4	**heavy**				14	**guess**			
	busy	try	today	55		gum	goose	get	52
5	**glad**				15	**use**			
	ran	rain	race	51		busy	beautiful	butter	51
6	**also**				16	**take**			
	brown	blown	broom	60		took	they	black	41
7	**oil**				17	**two**			
	cold	joy	child	53		toy	word	soon	69
8	**right**				18	**between**			
	ring	click	climb	34		before	beat	bell	35
9	**kind**				19	**by**			
	cow	know	city	48		time	any	way	35
10	**trip**				20	**clown**			
	trap	given	tree	37		show	should	shout	43

Continued on next page.

[1]The number of students answering each item correctly divided by the 1,507 students that answered one or more items in the Word Study Skills Sub-test.

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Intermediate I Battery (Form W)

Tables 18A & B: **Word Study Skills Sub-test Continued**

Table 18A: **Phonics Continued**

Item Number	Test Item			Percent Correct[1]	Item Number	Test Item			Percent Correct[1]
21	**fur**				29	**bad**			
	run	earth	before	54		arrived	wished	helped	46
22	**table**				30	**must**			
	apple	great	bottle	18		some	music	true	32
23	**jump**				31	**has**			
	gun	gave	edge	31		place	sat	days	45
24	**piece**				32	**mouth**			
	we	penny	pie	24		would	town	mother	37
25	**eat**				33	**fence**			
	enter	bread	me	37		since	tents	plants	33
26	**giant**				34	**ball**			
	gate	give	page	26		balloon	brought	bat	26
27	**of**				35	**fix**			
	love	fun	for	70		clocks	fish	first	20
28	**enough**				36	**look**			
	caught	though	laugh	52		loose	shoot	full	16

[1]The number of students answering each item correctly divided by the 1,507 students that answered one or more items in the Word Study Skills Sub-test.

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Tables 18A & B: **Word Study Skills Sub-test Continued**

Table 18B: **Syllabication**

This test measures the ability to see word structure. The student reads a word and chooses the correct syllabication from four alternatives.

Sample: kitten

1. ki tten
2. ki tt en
3. kit ten
4. kitten

1 ○ 2 ○ 3 ● 4 ○

Item Number	Correct Syllabication	Percent Correct[1]
37	de part ment	74
38	dif fer ent	48
39	re peat ed	63
40	pro vid ed	58
41	sand wich es	72
42	a muse ment	40
43	per fect ly	68
44	ap point ment	70
45	bi cy cle	41
46	prin ci pal	69
47	ar ti cles	31
48	po lice man	40
49	el e va tor	25
50	pres i dent	33
51	slip per y	41
52	ex er cis es	33
53	ed u cat ed	35
54	gro cer y	30
55	la dies	34
56	what ev er	42
57	pi o neer	17
58	reg u lar	34
59	grand fa ther	33
60	med i cine	36
61	laughed	22

[1]The number of students answering each item correctly divided by the 1,507 students that answered one or more items in the Word Study Skills Sub-test.

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Intermediate I Battery (Form W)

Tables 19A-E: **Language Sub-test**

The Language Test consists of exercises in Usage, Punctuation, Capitalization, Dictionary Skills, and Sentence Sense.

* *

Table 19A: **Usage**

Usage samples correct verb usage, the use of pronouns and adjectives, choice of words, double negatives, and substandard corruptions. The student is to decide which, if either, of two choices is correct to complete a sentence. If neither choice is correct, the student fills in the space under N (neither).

Sample: A Joe $\begin{matrix}1\ \text{set}\\2\ \text{sat}\end{matrix}$ in the chair. A

Item Number	Topic Measured	Percent Correct[1]
1	Irregular verb forms	67
2	Verbs: Correct form of subjunctive mood	59
3	Verb tenses	64
4	Substandard corruption form	76
5	Double negative	67
6	Substandard corruption form	55
7	Correct form of pronoun	72
8	Irregular verb forms	59
9	Irregular verb forms	69
10	Verb agreement with subject	63
11	Substandard corruption form	74
12	Verbs: Correct form of subjunctive mood	63
13	Possessive pronoun	91
14	Spelling	43
15	Word choice involving verbs	56
16	Verb tenses	24
17	Verb agreement with subject	30
18	Irregular verb forms	27
19	Verb tenses	48
20	Substandard corruption form	36
21	Verb agreement with subject	67
22	Pronoun nominative case	41
23	Verb tenses	33
24	Word choice involving verbs	37
25	Spelling	88
26	Verb agreement with subject	56
27	Pronoun nominative case	47
28	Verb tenses	10
29	Irregular verb forms	27
30	Pronoun objective case	46
31	Irregular verb forms	37
32	Double negative	25
33	Irregular verb forms	27
34	Irregular verb forms	32
35	Irregular verb forms	22
36	Pronoun nominative case	31
37	Verb tenses	16
38	Correct form of pronoun	29

[1]The number of students answering each item correctly divided by the 3,187 students that answered one or more items in the Language Sub-test.

Tables 19A-E: **Language Sub-test Continued**

Table 19B: **Punctuation**

A short business letter is reproduced in the test booklet. The student decides which mark of punctuation, if any, is needed after the words that are underlined in the exercise.

Item Number	Rule of Punctuation	Percent Correct[1]
39	None required: In street address	77
40	Comma: Between city and state	92
41	None required: After date	55
42	None required	51
43	None required: After state in address	46
44	Colon: After business salutation	29
45	None required: In middle of sentence	78
46	Comma: Separating clauses	44
47	Period: End of sentence	45
48	Comma: After conjunctive adverb	46
49	Comma: Separating clauses	38
50	None required: In middle of sentence	13
51	Period: End of sentence	90
52	None required: In middle of sentence	40
53	Comma: After complimentary close	88
54	Comma: After direct address	35
55	Quotation marks: Close quotation	53
56	Period: End of sentence	60
57	Quotation marks: Close quotation	26
58	Quotation marks: Close quotation	57

[1]The number of students answering each item correctly divided by the 3,187 students that answered one or more items in the Language Sub-test.

Intermediate I Battery (Form W)

Tables 19A-E: **Language Sub-test Continued**

Table 19C: **Capitalization**

The capitalization exercise consists of a series of sentences in paragraph form. The student is to decide whether the underlined words should be capitalized.

Item Number	Capitalization Rule	Percent Correct[1]
59	Common noun, middle of sentence (no caps)	26
60	Name of a country	94
61	Name of a city	77
62	Common noun, middle of sentence (no caps)	79
63	Epithet for particular flag	89
64	Common noun, middle of sentence (no caps)	82
65	Common noun, middle of sentence (no caps)	71
66	Epithet for particular flag	94
67	Epithet for particular flag	92
68	Epithet for particular flag	88
69	Epithet for particular flag	83
70	Epithet for particular flag	73
71	Conjunction in middle of title (no caps)	89
72	Geographical direction (no caps)	69
73	Proper name of river	91
74	Proper name of river	60
75	Name of a city	89
76	Common noun, middle of sentence (no caps)	93
77	Adjective, middle of sentence (no caps)	53
78	Common noun, middle of sentence (no caps)	64
79	Common noun, middle of sentence (no caps)	84
80	Name of a country	90
81	Common noun, middle of sentence (no caps)	50
82	Title of musical work	92
83	Article in middle of title (no caps)	88
84	Nationality	90
85	Nationality	88
86	Title of musical work	86
87	Common noun, middle of sentence (no caps)	88
88	Title of specific governing body	54
89	Common noun, middle of sentence (no caps)	66
90	Name of a language	89
91	Name of a language	88
92	Common noun, middle of sentence (no caps)	70
93	Proper name; body of water	81
94	Common noun, end of sentence (no caps)	78

[1]The number of students answering each item correctly divided by the 3,187 students that answered one or more items in the Language Sub-test.

Tables 19A-E: **Language Sub-test Continued**

Table 19D: **Dictionary Skills**

Dictionary Skills tests the student's ability to use a dictionary. Each of the 10 questions was designed to measure certain study skills in language.

Item Number	Topic Measured	Percent Correct[1]
95	Choice of meaning	38
96	Choice of meaning	41
97	Matching sound	49
98	Interpreting a definition	30
99	Interpreting a definition	15
100	Choice of meaning	36
101	Choice of meaning	28
102	Interpreting a definition	39
103	Guide words	46
104	Matching sound	24

[1]The number of students answering each item correctly divided by the 3,187 students that answered one or more items in the Language Sub-test.

Table 19E: **Sentence Sense**

In part E, Sentence Sense, the student is required to read a group of words and decide whether they constitute one complete sentence, more than one complete sentence, or no complete sentence.

Item Number	Topic Measured	Percent Correct[1]
105	Sentence fragment	51
106	Sentence fragment	49
107	Run-together sentences	61
108	One complete sentence	73
109	Sentence fragment	46
110	Run-together sentences	62
111	One complete sentence	32
112	Sentence fragment	15
113	Sentence fragment	73
114	Sentence fragment	18
115	Run-together sentences	59
116	One complete sentence	60
117	Run-together sentences	47
118	One complete sentence	59
119	Sentence fragment	29
120	Run-together sentences	59
121	Sentence fragment	50
122	One complete sentence	59

[1]The number of students answering each item correctly divided by the 3,187 students that answered one or more items in the Language Sub-test.

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Table 20: **Arithmetic Computation**

This test measures proficiency in the computational skills appropriate for grade 4 and the beginning of grade 5. The computations are drawn from the fundamental operations of addition, subtraction, multiplication and division. The exercises are representative of the usual curriculum and textbook patterns of content.

In the item content description below, the letter "d" stands for the number of digits in the computation, e.g. 2d – 1d means 2 digits minus 1 digit (28–8). Items followed by an asterisk (*) involve regrouping (borrowing or carrying).

Item Number	Topic Measured	Percent Correct[1]
1	Addition: 2d + 2d	94
2	Subtraction: 3d – 2d*	84
3	Multiplication: 2d x 1d	95
4	Addition: 3d + 3d*	89
5	Multiplication: 2d x 1d	94
6	Addition: Open sentence (2d + 2d)*	89
7	Subtraction: 3d – 3d*	78
8	Addition: Open Sentence (2d + 2d + 1d)*	89
9	Subtraction: 3d – 3d*	80
10	Multiplication: 3d x 1d*	85
11	Subtraction: 3d – 3d*	82
12	Division: 3d ÷ 1d (zero in dividend)	81
13	Addition: 2d + 3d + 2d + 3d*	74
14	Multiplication: Open sentence (3d x 1d)*	87
15	Addition: 3d + 3d + 3d*	80
16	Addition: 4d + 4d + 4d*	72
17	Subtraction: 4d – 4d* (money)	73
18	Division: Open sentence (3d ÷ 1d)*	82
19	Subtraction: 4d – 3d*	64
20	Subtraction: 5d – 4d*	61
21	Division: 3d ÷ 1d*	76
22	Fraction*	65
23	Fraction	64
24	Multiplication: 3d x 1d*	62
25	Subtraction: 5d – 4d*	62
26	Fraction*	57
27	Division: 3d ÷ 1d*	63
28	Division: 4d ÷ 1d*	61
29	Division: 4d ÷ 1d*	61
30	Division: 4d ÷ 1d; zero in quotient	42
31	Division: 4d ÷ 1d; zero in quotient	45
32	Multiplication: 3d x 2d; zero*	62
33	Division: 4d ÷ 1d*	59
34	Division: 2d ÷ 2d	67
35	Multiplication: 3d x 3d; zeroes*	57
36	Multiplication: 3d x 2d; money*	47
37	Multiplication: 3d x 2d*	46
38	Fraction with numerator larger than 1	36
39	Multiplication: 3d x 3d; zero*	45

[1]The number of students answering each item correctly divided by the 3,198 students that answered one or more items in the Arithmetic Computation Sub-test.

Table 21: **Arithmetic Concepts Sub-test**

This test measures understanding of fractions, ratios, arithmetic average, meaning of percent, and other concepts related to the broad use of arithmetic principles.

Item Number	Topic Measured	Percent Correct[1]
1	Place value	51
2	Roman numeral	54
3	Subtraction terms	72
4	Fraction concept	64
5	Number sentence	76
6	Place value	59
7	Multiplication vocabulary	40
8	Extending number series	56
9	Roman numeral	60
10	Place value	64
11	Number sentence	65
12	Fraction concept; size of number	61
13	Time	78
14	Fraction concept	56
15	Fraction concept	42
16	Reading numerals	60
17	Size of number	36
18	Extending number series	62
19	Fraction concept	56
20	Reading numerals	61
21	Fraction; size of number	33
22	Operational relationship in addition	26
23	Place value	48
24	Operational relationship in multiplication	27
25	Percent	45
26	Operational relationship in division	35
27	Estimation	53
28	Fraction concept	31
29	Operational relationship in multiplication	53
30	Finding average	26
31	Directional number	22
32	Reasoning	26

[1]The number of students answering each item correctly divided by the 3,196 students that answered one or more items in the Arithmetic Concepts Sub-test.

Intermediate I Battery (Form W)

Table 22: **Arithmetic Applications Sub-test**

The items in this sub-test measure reasoning with problems taken from life experiences. The general reading vocabulary has been kept much below the problem-solving level being measured. Computation difficulty has been controlled so that it is only a minor factor.

Item Number	Topic Measured	Percent Correct[1]
1	Addition, money	84
2	Subtraction	72
3	Subtraction	47
4	Subtraction	54
5	Addition, money (2-step problem)	29
6	Division, measurement	33
7	Reading a graph	92
8	Reading a graph	66
9	Reading a graph	35
10	Reading a graph	36
11	Measurement, ratio	55
12	Measurement	51
13	Finding average	42
14	Division, money	38
15	Subtraction, money	56
16	Addition, money	82
17	Subtraction, money	64
18	Subtraction, money	40
19	Division	49
20	Multiplication	45
21	Fractions	15
22	Fractions	50
23	Ratio	35
24	Multiplication, money, measurement	52
25	Ratio, money	34
26	Fractions	45
27	Addition, multiplication, money (3-step problem)	37
28	Addition, subtraction, money (2-step problem)	41
29	Finding average	19
30	Ratio, money	24
31	Problem analysis	43
32	Problem analysis	26
33	Problem analysis	35

[1]The number of students answering each item correctly divided by the 3,195 students that answered one or more items in the Arithmetic Applications Sub-test.

Tables 23A & B: **Social Studies Sub-test**

The questions of this test may be classified into 2 general categories: 1) Content – covers areas that may be defined as history, geography and civics, and 2) Study Skills – which involves interpretation of graphs and tables, interpretation of a globe, and reading of maps.

Table 23A: **Content**

Item Number	Topic Measured	Percent Correct[1]
1	Geography	89
2	Economics	83
3	Geography	71
4	History	46
5	Clothing	80
6	Occupation	48
7	Industry	56
8	Food	57
9	History	27
10	Industry	64
11	Economics	43
12	Industry	33
13	Geography	52
14	Sociology and Civics	28
15	History	28
16	History	50
17	Geography	38
18	Communication	50
19	Geography	40
20	Economics	31
21	Shelter	4
22	History	16
23	Geography	17
24	Geography	25

[1]The number of students answering each item correctly divided by the 3,170 students that answered one or more items in the Social Studies Sub-test.

Intermediate I Battery (Form W)

Tables 23A & B: **Social Studies Sub-test Continued**

Table 23B: **Study Skills**

Item Number	Topic Measured	Percent Correct[1]
25	Reading a bar graph	86
26	Reading a bar graph	88
27	Reading a bar graph	77
28	Reading a bar graph	54
29	Reading a bar graph	57
30	Reading a pictograph	81
31	Reading a pictograph	53
32	Reading a pictograph	49
33	Reading a pictograph	18
34	Reading a pictograph	21
35	Using a globe	87
36	Using a globe	82
37	Using a globe	67
38	Using a globe	74
39	Using a globe	13
40	Reading map and legend	91
41	Reading map and legend	86
42	Reading map and legend	78
43	Reading map and legend	71
44	Reading map and legend	63
45	Reading map and legend	60
46	Reading map and legend	37
47	Reading map and legend	36
48	Reading map and legend	30
49	Reading map and legend	37

[1]The number of students answering each item correctly divided by the 3,170 students that answered one or more items in the Social Studies Sub-test.

Table 24: **Science Sub-test**

The primary objectives measured by the Science Test are 1) the ability to see the application of the principles of science in our environment and everyday activities, 2) knowledge of the facts and generalization from the various branches of the natural sciences, and 3) some knowledge of the scientific method.

Item Number	Topic Measured	Percent Correct[1]
1	Science in industry	89
2	Light	86
3	Chemistry	76
4	Astronomy	69
5	Astronomy	65
6	Science in industry, everyday living	70
7	Weather	51
8	Animals	36
9	Scientific method	69
10	Safety	24
11	Energy and machines	73
12	Health	47
13	Science in everyday living	70
14	Plants	76
15	Earth science	57
16	Animals	56
17	Animals	72
18	Health	68
19	Air	62
20	Energy and machines	59
21	Magnetism	59
22	Astronomy	61
23	Science in everyday living	35
24	Conservation	37
25	Science in everyday living	62
26	Air	56
27	Animals	65
28	Earth science	60
29	Earth science	51
30	Famous scientist	42
31	Scientific method	43
32	Scientific method	30
33	Electricity	39
34	Chemistry	39
35	Food, health	39
36	Earth science	20
37	Science in industry	36
38	Animals	26
39	Plants	29

Continued on next page.

[1]The number of students answering each item correctly divided by the 3,163 students that answered one or more items in the Science Sub-test.

Intermediate I Battery (Form W)

Table 24: **Science Sub-test Continued**

Item Number	Topic Measured	Percent Correct[1]
40	Plants	51
41	Animals	31
42	Plants	24
43	Earth science	17
44	Animals and plants	25
45	Energy and machines	70
46	Earth science	38
47	Scientific method	15
48	Animals	25
49	Food, health	20
50	Astronomy	27
51	Plants	34
52	Weather	24
53	Scientific method	12
54	Animals	28
55	Earth science	35
56	Air and weather	15

[1]The number of students answering each item correctly divided by the 3,163 students that answered one or more items in the Science Sub-test.

Item Analysis
and
Item Content Description
Stanford Achievement Test
Intermediate II Battery, Form W

Stanford Achievement Test
Intermediate II Battery, Form W
Item Analysis and Item Content Description

The Intermediate Ii Battery measures reading, arithmetic, language, spelling, social studies and science. It was designed for use with students in the middle of grade 5 to the end of grade 6. Reading is measured by means of two tests, Word Meaning and Paragraph Meaning. Arithmetic is measured by three tests: Arithmetic Computation, Arithmetic Concepts, and Arithmetic Applications. Language, Spelling, Social Studies, and Science are each measured by a single test. All test items are of the multiple-choice type. Table IV contains a summary of the item analysis results for the major curriculum categories covered by the Intermediate II Battery. These summary results are also presented in Figure IV

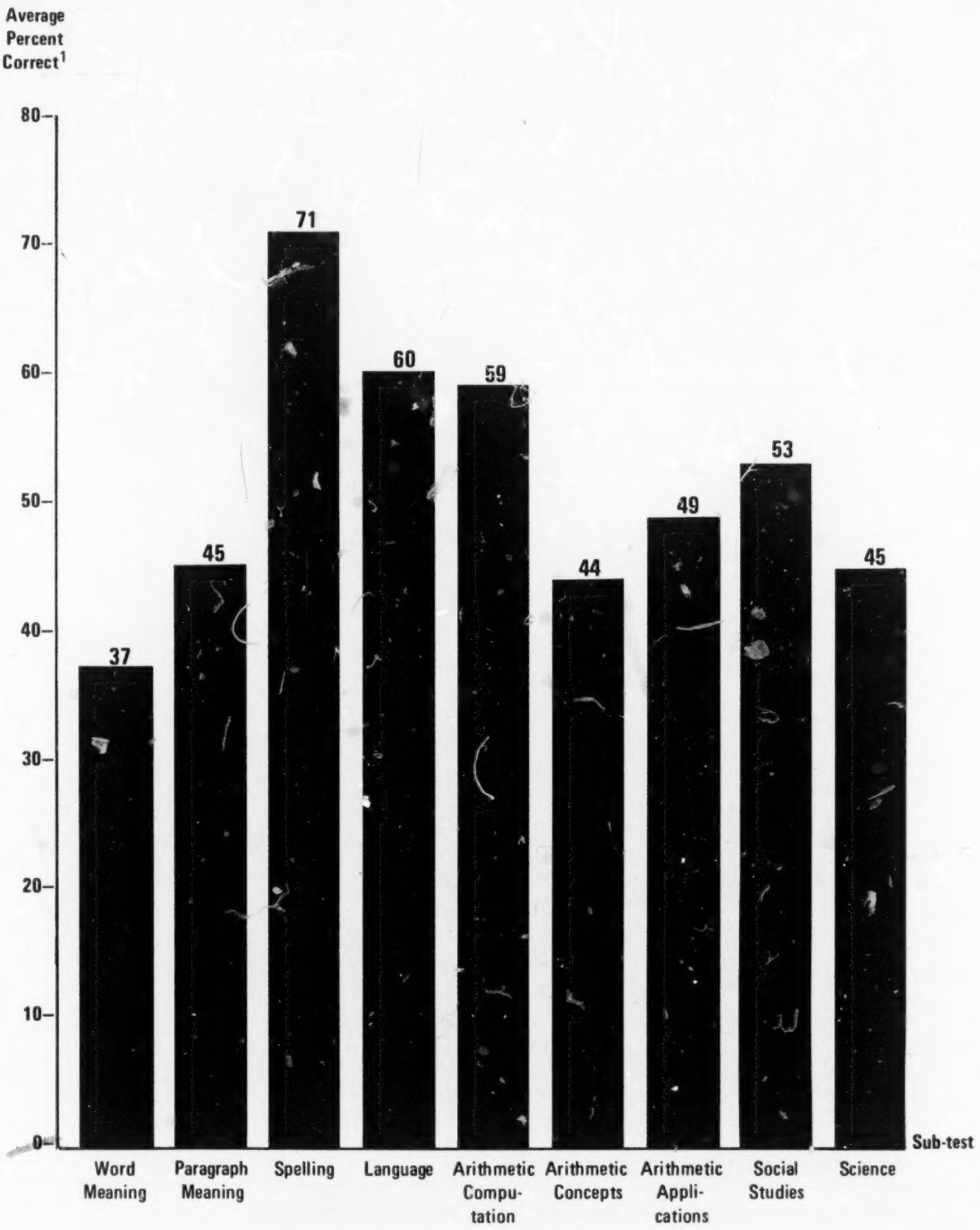
TABLE IV: Intermediate II Battery, Form W, Stanford Achievement Tests, Item Analyses Summary for Students in Schools and Classes for the Hearing Impaired, United States, Spring 1971

Sub-test and Curriculum Topic	Percent of Correct Answers[1]
Word Meaning – Sub-test Total	37
Nouns	44
Verbs	33
Adjectives or Adverbs	34
Paragraph Meaning – Sub-test Total	45
Comprehension – Literal	52
Comprehension – Inferential	41
Inference	41
Spelling – Sub-test Total	71
Language – Sub-test Total	60
Usage	52
Punctuation	63
Capitalization	81
Dictionary Skills	40
Sentence Sense	60
Arithmetic Computation – Sub-test Total	59
Whole Numbers	70
Fractions	44
Arithmetic Concepts – Sub-test Total	44
Arithmetic Applications – Sub-test Total	49
Social Studies – Sub-test Total	53
Content	47
Study Skills	61
Science – Sub-test Total	45

[1]The average of the percent of correct answers to each item in a sub-test or curriculum category.

Intermediate II Battery (Form W)

FIGURE IV: Intermediate II Battery, Form W, Item Analyses Summary for Students in Schools and Classes for the Hearing Impaired, United States, Spring 1971



[1]The average of the percent of correct answers to each item in a sub-test or curriculum category.

Table 25: **Word Meaning Sub-test**

The Word Meaning Test of the Intermediate II level is designed to measure the pupil's general knowledge on the assumption that mastery of vocabulary is a suitable index for this purpose. The items were administered in a tryout edition and by analysis, they were placed within the test in order of graduating difficulty.

Item Number	Test Item	Percent Correct[1]
1	To clutch a person's hand is to – **release it** **tickle it** **grasp it** **burn it**	53
2	If your jacket is crumpled, it is – **smooth** **wrinkled** **raveled** **torn**	70
3	Something which you can see is – **invisible** **edible** **hidden** **visible**	78
4	When you reduce something, you – **forget it** **make it smaller** **remove it** **throw it away**	60
5	A stream which contributes water to another stream is called a – **pond** **beach** **tributary** **sea**	63
6	A long, slippery fish shaped like a snake is called – **a copperhead** **a lizard** **a chameleon** **an eel**	84
7	A person guilty of a crime is a – **judge** **culprit** **leader** **witness**	42
8	A long, narrow, mountain gorge with steep sides is called a – **plateau** **plain** **canyon** **rut**	61
9	Flint is a kind of – **rock** **cloth** **wood** **animal**	58
10	An incredible story is – **long** **true** **endless** **unbelievable**	70
11	The giving up of something which is wanted or needed is – **a sacrifice** **a benefit** **a relief** **an assistance**	32
12	A business transaction in which one gains by selling is said to be – **miserable** **bankruptcy** **penurious** **profitable**	55
13	A group of people gathered for religious worship is called a – **colony** **congregation** **convention** **committee**	30
14	To seek is to – **find** **settle** **see** **search**	41
15	A line passing through the center of a circle and with its ends on the circle is called a – **radius** **diameter** **diamond** **diagonal**	57
16	If you are daring but unwise, you are considered to be – **foolhardy** **shameful** **awkward** **noisy**	39
17	That which is extremely cold is – **cool** **frigid** **temperate** **torrid**	42
18	To be humiliated is to be – **hated** **lost** **hungry** **mortified**	45
19	An audience held spellbound is – **fascinated** **reassured** **convinced** **indifferent**	27
20	An official count of people is called a – **grouping** **census** **document** **conference**	48
21	If you can see through something, it is – **translucent** **solid** **opaque** **transparent**	46
22	The maintenance and preservation of our natural resources is called – **conservation** **reservation** **elimination** **concentration**	37
23	A wandering singer and storyteller is – **a writer** **a minstrel** **a lumberjack** **an acrobat**	32
24	A timid person is – **lonely** **hungry** **fearful** **tired**	37

Continued on next page.

[1]The number of students answering each item correctly divided by the 1,558 students that answered one or more items in the Word Meaning Sub-test.

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Intermediate II Battery (Form W)

Table 25: **Word Meaning Sub-test Continued**

Item Number	Test Item	Percent Correct[1]
25	When you inscribe something, you – **write on it** **find it** **search for it** **inspect it**	27
26	To discontinue for a time is to – **resume** **progress** **suspend** **disturb**	28
27	Strain on a wire caused by action of a pulling force is called – **remission** **slack** **weakness** **tension**	50
28	An anonymous author is – **old** **poor** **unknown** **well-known**	36
29	If you liberate a pet rabbit, you – **free it** **love it** **kill it** **feed it**	34
30	A concise reply to a question is – **incorrect** **lengthy** **brief** **complicated**	22
31	A chronic worrier is a person who worries – **continuously** **frequently** **seldom** **intermittently**	26
32	When you are a spectator, you – **practice** **watch** **sail** **inspect**	42
33	To wither is to – **run** **wander** **wish** **dry**	13
34	A person who speaks with a slow, lengthened tone – **stutters** **chatters** **drawls** **shrieks**	24
35	Beds on a train are sometimes called – **sleepers** **berths** **gliders** **cots**	28
36	A person who is perplexed is – **confused** **lazy** **misinformed** **friendless**	25
37	The destruction of an entire race of people would make that race – **extinct** **bountiful** **rejuvenated** **abundant**	20
38	The locality in which an animal usually lives is called its – **habitat** **hacienda** **habit** **cage**	29
39	When you descend a mountain, you – **climb up** **explore it** **come down** **avoid it**	16
40	An impromptu speech is – **premeditated** **practiced** **prepared** **unplanned**	23
41	A deceitful person is – **upright** **fraudulent** **dependable** **trustworthy**	16
42	A look of derision is – **admiring** **respectful** **scornful** **reverent**	21
43	A candid answer to a question is – **untrue** **short** **frank** **complicated**	14
44	When people disperse, they – **accumulate** **scatter** **congregate** **die**	20
45	People conquered by their enemy are – **liberated** **destroyed** **educated** **subjugated**	16
46	When your duties are neglected, they are – **increased** **slighted** **boring** **removed**	13
47	A bitter and irritated person is – **galled** **pacified** **reconciled** **appeased**	12
48	A hard coal that burns with very little smoke or flame is called – **coke** **bituminous** **charcoal** **anthracite**	6

[1]The number of students answering each item correctly divided by the 1,558 students that answered one or more items in the Word Meaning Sub-test.

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Table 26: **Paragraph Meaning Sub-test**

The Paragraph Meaning Test consists of a series of paragraphs, graduated in difficulty, from each of which one or more words have been omitted. The pupil's task is to demonstrate his comprehension of the paragraph by selecting the proper word for each omission from four choices.

The general categories of classification in this sub-test are as follows:

1. Comprehension – literal: the essentials required for the answer are contained in the paragraph.
2. Comprehension – inferential: most of the essentials are found in the material but some conclusions must be drawn from the cues provided.
3. Inference: requires something beyond the material. The cues are not as obvious as those in the "Comprehension – inferential" category.

Item Number	Topic Measured	Percent Correct[1]	Item Number	Topic Measured	Percent Correct[1]
1	Comprehension – inferential	43	33	Inference	35
2	Comprehension – inferential	19	34	Comprehension – literal	48
3	Comprehension – literal	50	35	Comprehension – inferential	31
4	Comprehension – literal	94	36	Inference	44
5	Comprehension – literal	80	37	Inference	70
6	Comprehension – literal	65	38	Inference	39
7	Comprehension – inferential	63	39	Comprehension – inferential	57
8	Comprehension – literal	37	40	Inference	48
9	Comprehension – literal	63	41	Inference	49
10	Comprehension – literal	79	42	Comprehension – literal	42
11	Comprehension – literal	63	43	Inference	19
12	Inference	33	44	Comprehension – literal	38
13	Comprehension – literal	75	45	Comprehension – inferential	40
14	Comprehension – literal	49	46	Inference	25
15	Comprehension – literal	56	47	Comprehension – literal	20
16	Comprehension – literal	65	48	Comprehension – inferential	35
17	Inference	41	49	Comprehension – literal	62
18	Inference	80	50	Comprehension – inferential	56
19	Inference	28	51	Inference	35
20	Comprehension – inferential	63	52	Comprehension – inferential	58
21	Comprehension – literal	32	53	Inference	42
22	Comprehension – literal	63	54	Comprehension – literal	42
23	Comprehension – inferential	48	55	Comprehension – inferential	16
24	Comprehension – literal	58	56	Inference	29
25	Comprehension – inferential	46	57	Comprehension – literal	20
26	Comprehension – literal	35	58	Inference	54
27	Comprehension – inferential	31	59	Comprehension – literal	36
28	Comprehension – literal	35	60	Comprehension – inferential	36
29	Comprehension – inferential	37	61	Comprehension – literal	36
30	Inference	24	62	Comprehension – inferential	20
31	Comprehension – inferential	49	63	Comprehension – inferential	28
32	Comprehension – inferential	45	64	Comprehension – inferential	38

[1]The number of students answering each item correctly divided by the 1,555 students that answered one or more items in the Paragraph Meaning Sub-test.

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Table 27: **Spelling Sub-test**

This test consists of multiple-choice items in which the student chooses from four words the one which was spelled incorrectly. Nearly all of the words used on this test are within the first 5000 words in children's usage.

Sample: A. 1. sign 2. custom 3. wate 4. gone

A ○1 ○2 ●3 ○4

Item Number	Misspelled Word	Percent Correct[1]	Item Number	Misspelled Word	Percent Correct[1]
1	fiting	73	29	continuelly	54
2	hospetal	97	30	forgotton	67
3	allthough	94	31	elaberate	62
4	kichen	97	32	parden	75
5	idel	96	33	bycicle	71
6	suger	95	34	merchandize	36
7	heavey	95	35	desided	78
8	moddern	91	36	apointed	75
9	climet	93	37	celabrate	63
10	stoped	87	38	relize	55
11	importence	89	39	discusted	57
12	ladys	89	40	goverment	67
13	satesfied	78	41	exersize	74
14	progam	87	42	gilty	64
15	boxs	94	43	sugestions	60
16	cryed	94	44	servent	55
17	gaurd	85	45	temperture	57
18	developped	88	46	emergancy	44
19	inocent	86	47	carring	67
20	colection	85	48	begining	62
21	flys	75	49	comunities	68
22	choosen	60	50	equiped	35
23	fedral	78	51	originaly	47
24	socity	85	52	discribe	41
25	encurraging	68	53	apperance	46
26	phisical	72	54	recieving	29
27	gradualy	74	55	aquaint	41
28	oppisite	72	56	simpathy	55

[1]The number of students answering each item correctly divided by the 1,527 students that answered one or more items in the Spelling Sub-test.

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Tables 28A-E: **Language Sub-test**

The Language Test consists of exercises in Usage, Punctuation, Capitalization, Dictionary Skills and Sentence Sense.

* *

Table 28A. **Usage**

This test samples correct verb usage, the use of pronouns and adjectives, choice of words, double negatives, and substandard corruptions. The student is to decide which, if either, of two choices is correct to complete a sentence. If neither choice is correct, the student fills in the space under N (neither).

Sample: A Joe $\begin{matrix}1\ \text{set}\\2\ \text{sat}\end{matrix}$ in the chair. A ○ ● ○ (1 2 N)

Item Number	Topic Measured	Percent Correct[1]
1	Irregular verb forms	87
2	Verb tenses	59
3	Pronoun objective case	92
4	Word choice	76
5	Irregular verb forms	72
6	Irregular verb forms	73
7	Verb tenses	44
8	Irregular verb forms	70
9	Correct form of pronoun	30
10	Correct form of pronoun	94
11	Irregular verb forms	77
12	Irregular verb forms	77
13	Verb tenses	42
14	Verb tenses	47
15	Irregular verb forms	75
16	Article	88
17	Verb tenses	62
18	Word choice involving verbs	41
19	Word choice involving verbs	53
20	Word choice involving verbs	35
21	Pronoun objective case	56
22	Irregular verb forms	48
23	Pronoun objective case	65
24	Double negative	41
25	Substandard corruption form	21
26	Substandard corruption form	51
27	Pronoun objective case	54
28	Verb tenses	30
29	Substandard corruption form	42
30	Word choice involving verbs	34
31	Verb tenses	16
32	Verb: Subjunctive mood	29
33	Verb agreement with subject	50
34	Verb agreement with subject	29
35	Irregular verb forms	31
36	Adjective: comparative, superlative forms	23
37	Adjective: comparative, superlative forms	46
38	Pronoun objective case	19

[1]The number of students answering each item correctly divided by the 1,557 students that answered one or more items in the Language Sub-test.

Tables 28A-E: **Language Sub-test Continued**

Table 28B: **Punctuation**

The item situations in Part B are presented in connected discourse. The student decides which mark of punctuation, if any, is needed after each underlined word in the exercise.

Item Number	Punctuation Required	Percent Correct[1]
39	Comma after direct address	88
40	Question mark, quotation mark: after question in direct quotation	50
41	Comma: enclosing participial phrase	34
42	None required: separating dependent clause used as object	62
43	Period: end of sentence	52
44	None required: between two adjectives	47
45	Exclamation mark: after exclamation	81
46	Question mark: after question	84
47	Comma: to separate co-ordinate clauses	69
48	Question mark: after question	34
49	Comma: setting off responsive ("no") beginning sentence	74
50	Quotation mark: opening quotation within sentence	75
51	Period: end of sentence	46
52	None required: separating phrase in short sentence	88
53	Comma: Separating words in a series	82
54	Comma: after participial phrase	57
55	None required: before "and" separating co-ordinate adjectives	82
56	Comma: Separating dependent clause placed before main clause	29

[1]The number of students answering each item correctly divided by the 1,557 students that answered one or more items in the Language Sub-test.

Tables 28A-E: **Language Sub-test Continued**

Table 28C: **Capitalization**

This test is also presented in connected discourse. Certain words have been underlined and the student must decide whether these words should be capitalized.

Item Number	Capitalization Rule	Percent Correct[1]
57	No caps: studies, but not specific courses	60
58	No caps: studies, but not specific courses	58
59	Name of a country	96
60	No caps: common noun within sentence	78
61	No caps: common noun within sentence	79
62	Historic event	97
63	Historic event	96
64	No caps: common noun within sentence	92
65	No caps: common noun within sentence	77
66	Title of organization	87
67	Title of organization	85
68	No caps: common noun within sentence	95
69	Name of a city	98
70	Name of a city	98
71	Political organization	90
72	No caps: common noun within sentence	38
73	No caps: common noun within sentence	92
74	No caps: adjective within sentence	8
75	Name of a country	97
76	Nationality	95
77	No caps: common noun within sentence	82
78	No caps: adjective within sentence	82
79	No caps: common noun within sentence	85
80	Name of a river	97
81	Name of a river	87
82	No caps: common noun within sentence	57
83	Holiday	84
84	No caps: common noun within sentence	64
85	No caps: common noun within sentence	69
86	Religious term	95
87	Religious term	90
88	No caps: common noun within sentence	83
89	Name of a university	96
90	Name of a university	97
91	No caps: adjective	81
92	Part of proper name	65

[1]The number of students answering each item correctly divided by the 1,557 students that answered one or more items in the Language Sub-test.

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Tables 28A-E: **Language Sub-test Continued**

Table 28D: **Dictionary Skills**

Dictionary Skills tests the student's ability to use a dictionary. Each of the 24 questions was designed to measure certain study skills in language.

Item Number	Topic Measured	Percent Correct[1]
93	Choice of meaning	72
94	Choice of meaning	51
95	Recognition of root word	38
96	Interpreting a definition	28
97	Choice of meaning	44
98	Choice of meaning	26
99	Accent mark	37
100	Antonym	46
101	Choice of meaning	56
102	Choice of meaning	28
103	Interpreting a definition	36
104	Antonym	39
105	Choice of meaning	33
106	Choice of meaning	25
107	Interpreting a definition	38
108	Part of speech	48
109	Pronunciation	58
110	Matching sounds in words	53
111	Matching sounds in words	39
112	Silent letter	18
113	Matching sounds in words	25
114	Accent mark	49
115	Matching sounds in words	37
116	Pronunciation	29

[1]The number of students answering each item correctly divided by the 1,557 students that answered one or more items in the Language Sub-test.

Table 28E: **Sentence Sense**

In this test the student is required to read a group of words and decide whether they constitute one complete sentence, more than one complete sentence, or no complete sentence.

Item Number	Topic Measured	Percent Correct[1]
117	One complete sentence	94
118	Sentence fragment	44
119	Sentence fragment	55
120	Run-together sentences	70
121	One complete sentence	86
122	Sentence fragment	64
123	One complete sentence	55
124	One complete sentence	83
125	Sentence fragment	24
126	Run-together sentences	62
127	Run-together sentences	43
128	Run-together sentences	73
129	Sentence fragment	17
130	Sentence fragment	78
131	Sentence fragment	44
132	One complete sentence	78
133	Run-together sentences	61
134	One complete sentence	41

[1]The number of students answering each item correctly divided by the 1,557 students that answered one or more items in the Language Sub-test.

Table 29: **Arithmetic Computation Sub-test**

The Arithmetic Computation Test measures proficiency in the computational skills appropriate for grades 5 and 6. The fundamental operations of addition, subtraction, multiplication and division are extended to include computation with fractions, solution of a number sentence, and understanding of percent.

In the item content description below, the letter "d" stands for the number of digits in the computation, e.g. 2d – 1d means 2 digits minus 1 digit (28-8). Items followed by an asterisk (*) involve regrouping (borrowing or carrying).

Item Number	Topic Measured	Percent Correct[1]
1	Division: 3d ÷ 1d*	84
2	Addition: 3d + 2d + 3d + 2d*	78
3	Subtraction: money; 3d – 3d*	81
4	Addition: 3d + 4d + 4d*	80
5	Subtraction: 5d – 4d*	79
6	Subtraction: 5d – 4d*	78
7	Multiplication: 3d x 2d*	82
8	Multiplication: 2d x 2d*	79
9	Division: 4d ÷ 1d; zeroes in dividend & quotient*	63
10	Subtraction: 5d – 4d*	80
11	Addition: 4d + 4d + 4d*	80
12	Addition: 3d + 4d + 4d*	80
13	Division: 4d ÷ 1d*	74
14	Multiplication: 3d x 3d; zero in multiplier	75
15	Division: 3d ÷ 2d*	70
16	Addition of fractions	47
17	Finding average	49
18	Division: 4d ÷ 2d*	59
19	Division: 4d ÷ 1d; zero in dividend & quotient*	55
20	Multiplication: 3d x 3d; zero in multiplier*	60
21	Division: 4d ÷ 2d*	54
22	Addition of fractions and mixed numbers	63
23	Subtracting fraction from mixed number	60
24	Multiplying fraction by whole number	59
25	Multiplying whole number by decimal	80
26	Multiplication of fractions	57
27	Addition: denominate numbers	44
28	Multiplying whole number by decimal	68
29	Subtraction: mixed numbers	42
30	Division: fractions	52
31	Finding average	40
32	Division of whole number by fraction	46
33	Division of decimal by whole number	46
34	Multiplication: money; 4d x 2d*	41
35	Multiplication: fraction & denominate number	23
36	Division of whole number by decimal	20
37	Percent	23
38	Division: rounding off quotient	18
39	Percent	14

[1]The number of students answering each item correctly divided by the 1,556 students that answered one or more items in the Arithmetic Computation Sub-test.

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Table 30: **Arithmetic Concepts Sub-test**

The Arithmetic Concepts Test consists of 32 multiple-choice items designed to evaluate the student's understanding of mathematical terms, operations and principles. The concept measured by each item in this test is described below.

Item Number	Topic Measured	Percent Correct[1]
1	Set	57
2	Fractions	61
3	Reading numerals	76
4	Estimation	79
5	Place value	27
6	Fractions	42
7	Average	52
8	Number sentence	58
9	Number sentence	73
10	Geometry	53
11	Number sentence	78
12	Place value	39
13	Reasoning in number series	42
14	Place value	46
15	Fractions	27
16	Place value	74
17	Fractions	59
18	Number property and operational relationship	50
19	Fractions	30
20	Time	48
21	Roman numeral	33
22	Rounding	38
23	Fractions	23
24	Percent	26
25	Number property and operational relationship	32
26	Rounding	32
27	Fractions	13
28	Directed number	26
29	Prime number (divisibility)	28
30	Percent	22
31	Estimation	34
32	Estimation	23

[1]The number of students answering each item correctly divided by the 1,555 students that answered one or more items in the Arithmetic Concepts Sub-test.

Table 31: **Arithmetic Applications Sub-test**

The items in this sub-test measure reasoning with problems taken from life experiences. The general reading vocabulary has been kept much below the problem-solving level being measured. Computation difficulty has been controlled so that it is only a minor factor.

Item Number	Topic Measured	Percent Correct[1]
1	Average	74
2	Rate; money	70
3	Finding total; money; 3-step problem	77
4	Measurement	46
5	Money; 2-step problem	81
6	Money; finding total; 3-step problem	73
7	Money; finding total	70
8	Finding difference; money	51
9	Finding total; money; 3-step problem	59
10	Measurement; finding difference	62
11	Fractions	41
12	Reading graph	19
13	Reading graph	80
14	Reading graph	54
15	Problem analysis	36
16	Percent	61
17	Problem analysis	48
18	Two-step problem (addition & division)	57
19	Rate problem	35
20	Measurement; 2-step problem	32
21	Percent; finding total	35
22	Fractions	56
23	Rate problem	47
24	Rate problem	45
25	Money; fractions	54
26	Money; division	54
27	Finding difference; money; 2-step problem	45
28	Money; sales tax; 2-step problem	38
29	Money; 3-step problem	26
30	Reading a table	45
31	Reading a table	54
32	Reading a table	41
33	Money; 2-step problem	22
34	Mathematical sentence	68
35	Percent	26
36	Money; sales tax	40
37	Problem analysis	28
38	Measurement	13
39	Measurement	39

[1]The number of students answering each item correctly divided by the 1,550 students that answered one or more items in the Arithmetic Applications Sub-test.

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Tables 32A & B: **Social Studies Sub-test**

The Social Studies Test is divided into Part A: Content and Part B: Study Skills. Part A: Content consists of 45 items designed to measure knowledge in areas such as history, geography and civics, as well as the student's understanding of the interdependence of these areas. The objective of Part B is the measurement of the student's ability to use reference materials.

Table 32A: **Content**

Item Number	Topic Measured	Percent Correct[1]
1	Civics	92
2	History	88
3	Industry	66
4	History	70
5	Sociology & civics	66
6	Industry	79
7	Geography	87
8	History	61
9	Industry	69
10	Geography	83
11	Industry	77
12	Civics	67
13	Geography	46
14	Industry	50
15	History	39
16	Geography	51
17	Civics	36
18	Economics	25
19	Sociology & civics	20
20	History	30
21	Sociology & civics	49
22	Sociology	49
23	Industry	54
24	Geography	62
25	Economics	52
26	History	46
27	Industry	50
28	Geography	45
29	History	33
30	History	32
31	Geography	38
32	Geography	35
33	History	46
34	Geography	49
35	Geography	46
36	Sociology & civics	20
37	Economics	36
38	Geography	36
39	Industry	33
40	History	25
41	History	29
42	Geography	19
43	Geography	11
44	Geography	11
45	Geography	11

[1]The number of students answering each item correctly divided by the 1,548 students that answered one or more items in the Social Studies Sub-test.

Tables 32A & B: **Social Studies Sub-test Continued**

Table 32B: **Study Skills**

Item Number	Topic Measured	Percent Correct[1]
46	Reading a table	93
47	Reading a table	89
48	Reading a table	72
49	Reading a table	53
50	Reading a table	49
51	Reading a line graph	77
52	Reading a line graph	83
53	Reading a line graph	36
54	Reading a line graph	47
55	Reading a line graph	49
56	Reading a poster	62
57	Reading a poster	56
58	Reading a poster	38
59	Reading a poster	47
60	Reading map & legend	84
61	Reading map & legend	84
62	Reading map & legend	87
63	Reading map & legend	68
64	Reading map & legend	64
65	Reading map & legend	63
66	Reading map & legend	71
67	Reading map & legend	74
68	Reading map & legend	77
69	Reading map & legend	36
70	Reading map & legend	62
71	Reading map & legend	51
72	Reading map & legend	48
73	Reading map & legend	26
74	Reading map & legend	21

[1]The number of students answering each item correctly divided by the 1,548 students that answered one or more items in the Social Studies Sub-test.

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Table 33: **Science Sub-test**

The primary objectives measured by the Science Test are (1) the ability to see the application of the principles of science in our environment and everyday activities, (2) knowledge of the facts and generalizations from the various branches of the natural sciences, and (3) some knowledge of the scientific method.

Item Number	Topic Measured	Percent Correct[1]	Item Number	Topic Measured	Percent Correct[1]
1	Scientific method	59	30	Astronomy	47
2	Safety	71	31	Earth science	31
3	Animals	65	32	Air and weather	36
4	Science in everyday living	52	33	Scientific method	40
5	Health	50	34	Electricity and magnetism	68
6	Science in everyday living	84	35	Scientific method	55
7	Scientific method	83	36	Scientific method	34
8	Food	84	37	Electricity	35
9	Air and weather	68	38	Famous scientist	35
10	Conservation	67	39	Astronomy	30
11	Conservation	50	40	Sound	45
12	Energy and machines	73	41	Animals	42
13	Safety	48	42	The body	20
14	Magnetism	67	43	Astronomy	54
15	Plants	57	44	Earth science	24
16	Chemistry	61	45	The body	47
17	Energy and machines	43	46	Air and weather	45
18	Animals	41	47	Heat	25
19	Plants	41	48	Earth science	32
20	Chemistry	57	49	Food	25
21	Plants	35	50	Food	40
22	Animals	39	51	Animals	52
23	Chemistry	42	52	Plants	32
24	Plants	28	53	Air and weather	31
25	Scientific method	36	54	Astronomy	28
26	Science in industry	50	55	Earth science	17
27	Health	51	56	Plants	19
28	Food	36	57	The body	35
29	Animals	49	58	Air and weather	19

[1]The number of students answering each item correctly divided by the 1,540 students that answered one or more items in the Science Sub-test.

Item Analysis
and
Item Content Description
Stanford Achievement Test
Advanced Battery, Form W

Stanford Achievement Test
Advanced Battery, Form W
Item Analysis and Content Description

The Advanced Battery measures reading, arithmetic, language, spelling, social studies, and science. It was designed for use with students in grades 7, 8 and 9. Reading is measured by means of a single test, Paragraph Meaning. At this battery level, vocabulary and paragraph meaning become so closely related that scores on different tests cannot be justified. Arithmetic is measured by three tests: Arithmetic Computation, Arithmetic Concepts, and Arithmetic Applications. Language, Spelling, Social Studies, and Science are measured by means of single tests. Table V presents a summary of the item analysis results for all sub-tests and major academic content classifications within the Advanced Battery. The item analyses summary is also depicted in Figure V.

TABLE V: Advanced Battery, Form W, Stanford Achievement Tests, Item Analyses Summary for Students in Schools and Classes for the Hearing Impaired, United States, Spring 1971

Sub-test and Curriculum Topic	Percent of Correct Answers[1]
Paragraph Meaning – Sub-test Total	49
Comprehension – Literal	53
Comprehension – Inferential	53
Inference	39
Spelling – Sub-test Total	62
Language – Sub-test Total	66
Usage	49
Punctuation	61
Capitalization	87
Dictionary Skills	52
Sentence Sense	64
Arithmetic Computation – Sub-test Total	55
Whole Numbers	66
Fractions	48
Arithmetic Concepts – Sub-test Total	49
Arithmetic Applications – Sub-test Total	39
Social Studies – Sub-test Total	47
Content	44
Study Skills	52
Science – Sub-test Total	50

[1]The average of the percent of correct answers to each item in a sub-test or curriculum category.

Advanced Battery (Form W)

FIGURE V: Advanced Battery, Form W, Stanford Achievement Tests, Item Analyses Summary for Students in Schools and Classes for the Hearing Impaired, United States, Spring 1971

[1]The average of the percent of correct answers to each item in a sub-test or curriculum category.

Table 34: **Paragraph Meaning Sub-test**

The Paragraph Meaning Test consists of a series of paragraphs, graduated in difficulty, from each of which one or more words have been omitted. The pupil's task is to demonstrate his comprehension of the paragraph by selecting the proper word for each omission from four choices.

The general categories of classification in this sub-test are as follows:

1. Comprehension – literal: the essentials required for the answer are contained in the paragraph.
2. Comprehension – inferential: most of the essentials are found in the material but some conclusions must be drawn from the cues provided.
3. Inference: requires something beyond the material. The cues are not as obvious as those in the "Comprehension – inferential" category.

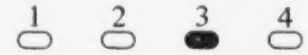
Item Number	Topic Measured	Percent Correct[1]	Item Number	Topic Measured	Percent Correct[1]
1	Comprehension – literal	60	31	Inference	53
2	Comprehension – inferential	53	32	Comprehension – literal	43
3	Comprehension – literal	63	33	Comprehension – literal	81
4	Comprehension – inferential	73	34	Comprehension – literal	46
5	Comprehension – literal	73	35	Comprehension – inferential	32
6	Inference	43	36	Comprehension – literal	46
7	Comprehension – inferential	64	37	Comprehension – literal	40
8	Comprehension – inferential	63	38	Comprehension – inferential	60
9	Comprehension – inferential	80	39	Comprehension – literal	60
10	Comprehension – literal	41	40	Comprehension – literal	51
11	Comprehension – literal	69	41	Inference	30
12	Comprehension – inferential	56	42	Inference	64
13	Comprehension – inferential	57	43	Comprehension – inferential	77
14	Comprehension – literal	44	44	Comprehension – inferential	21
15	Comprehension – literal	28	45	Comprehension – inferential	41
16	Comprehension – inferential	62	46	Comprehension – inferential	37
17	Comprehension – inferential	48	47	Comprehension – inferential	31
18	Comprehension – literal	59	48	Comprehension – inferential	24
19	Inference	41	49	Inference	34
20	Comprehension – inferential	75	50	Inference	58
21	Comprehension – literal	47	51	Inference	36
22	Inference	72	52	Inference	30
23	Comprehension – inferential	56	53	Inference	39
24	Comprehension – inferential	76	54	Inference	39
25	Comprehension – inferential	73	55	Inference	25
26	Comprehension – inferential	47	56	Comprehension – inferential	14
27	Inference	28	57	Inference	26
28	Inference	45	58	Inference	34
29	Comprehension – inferential	62	59	Inference	24
30	Comprehension – inferential	47	60	Inference	25

[1]The number of students answering each item correctly divided by the 807 students that answered one or more items in the Paragraph Meaning Sub-test.

Advanced Battery (Form W)

Table 35: **Spelling Sub-test**

In this sub-test, the student is required to choose from four words the one which is spelled incorrectly.

Sample: A 1. slowly 2. happen 3. inocent 4. consider A 

Item Number	Misspelled Word	Percent Correct[1]	Item Number	Misspelled Word	Percent Correct[1]
1	purfume	91	30	convienient	63
2	soceity	79	31	forword	57
3	amoung	94	32	equiped	51
4	glacail	88	33	originaly	71
5	thourogh	93	34	favorible	69
6	tragidy	82	35	disect	61
7	ambitius	69	36	diciple	78
8	companys	70	37	religous	68
9	interrim	83	38	simpathy	68
10	perrenial	82	39	discribe	64
11	condem	51	40	parisite	63
12	pasttime	72	41	apperance	60
13	curcumstance	67	42	advertisment	38
14	esential	73	43	cancelation	51
15	tennacity	60	44	rememberance	53
16	eficiency	62	45	mischevious	44
17	carring	82	46	advantagous	72
18	emergancy	62	47	recieving	39
19	begining	73	48	courtious	44
20	temperture	70	49	mathmatics	56
21	cabinate	71	50	aquaint	47
22	servent	72	51	decend	26
23	ordinarally	52	52	prefered	40
24	divison	62	53	raisen	42
25	interupt	68	54	signiture	46
26	schedualed	69	55	totaly	44
27	resistence	63	56	accomodation	16
28	comunities	76	57	alledged	28
29	recomended	51	58	satelite	45

[1]The number of students answering each item correctly divided by the 796 students that answered one or more items in the Spelling Sub-test.

Misspelled words reproduced from the Stanford Achievement Test, Copyright © 1964-1966 by Harcourt Brace Jovanovich, Inc. Reproduced by Permission.

Tables 36A-E: **Language Sub-test**

The Language Test consists of exercises in Usage, Punctuation, Capitalization, Dictionary Skills, and Sentence Sense.

* *

Table 36A: **Usage**

This test samples correct verb usage, the use of pronouns and adjectives, choice of words, double negatives, and substandard corruptions. The student is to decide which, if either, of two choices is correct to complete a sentence. If both choices are correct, the student fills in the space under B (both). If neither is correct, he fills in the space under N (neither).

Sample: A Joe $\begin{matrix}1\ \text{set}\\2\ \text{sat}\end{matrix}$ in the chair. A ○ ● ○ ○ (1 2 B N)

Item Number	Topic Measured	Percent Correct[1]
1	Verb agreement with subject	79
2	Irregular verb forms	83
3	Irregular verb forms	81
4	Idiomatic use of preposition	72
5	Word choice	40
6	Verb tenses	48
7	Irregular verb forms	68
8	Possessive pronoun	63
9	Pronoun objective case	77
10	Word choice involving verbs	61
11	Verb tenses	56
12	Pronoun objective case	61
13	Pronoun objective case	71
14	Verb tenses	63
15	Spelling	65
16	Word choice involving verbs	40
17	Word choice involving verbs	49
18	Word choice involving verbs	25
19	Pronoun objective case	39
20	Word choice	37
21	Verb tenses	30
22	Verb tenses	32
23	Possessive pronoun	66
24	Irregular verb forms	46
25	Word choice involving verbs	48
26	Double negative	28
27	Verb agreement with subject	58
28	Irregular verb forms	51
29	Word choice	43
30	Adjective – comparative, superlative forms	36
31	Irregular verb forms	19
32	Spelling	42
33	Pronoun nominative case	23
34	Substandard corruption form	43
35	Substandard corruption form	18
36	Verb agreement with subject	42
37	Pronoun objective case	38
38	Word choice involving verbs; spelling	20

[1]The number of students answering each item correctly divided by the 806 students that answered one or more items in the Language Sub-test.

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Tables 36A-E: **Language Sub-test Continued**

Table 36B: **Punctuation**

The item situations in Part B are presented in connected discourse. The student decides which mark of punctuation, if any, is needed after each underlined word in the exercise. Situations where punctuation is optional have also been included, with OP (Optional Punctuation) as one of the alternatives.

Item Number	Punctuation Required	Percent Correct[1]
39	Comma: Separating phrase	63
40	Comma: Between city and state	89
41	Comma: Separating phrase	52
42	Comma: Separating phrase	49
43	Comma: Separating phrase	55
44	None required: in compound verb	53
45	None required: between two adjectives	77
46	Comma: Separating participial phrase	46
47	Quotation marks: Closing quotation in sentence	65
48	Period: End of sentence	81
49	Quotation marks: Closing quotation in sentence	61
50	Comma: Separating words in a series	63
51	Optional: In a series, before "and"	27
52	Quotation marks: Opening quotation in sentence	80
53	Comma: Separating direct address	64
54	Comma: Separating exclamation from sentence	70
55	Quotation marks: Closing quotation within sentence	66
56	Optional: Setting off phrase	24
57	Quotation marks: Opening quotation within sentence	67
58	Quotation marks: Closing quotation	67

[1]The number of students answering each item correctly divided by the 806 students that answered one or more items in the Language Sub-test.

Table 36C: **Capitalization**

Capitalization is also presented in connected discourse. Certain words have been underlined and the student must decide whether these words should be capitalized.

Item Number	Capitalization Rule	Percent Correct[1]
59	Name of a city	99
60	No caps: common noun within sentence	84
61	Name of a school	99
62	Name of a school	90
63	No caps: common noun within sentence	52
64	No caps: common noun within sentence	56
65	Religious event	67
66	Religious event	93
67	No caps: common noun within sentence	91
68	No caps: common noun within sentence	83
69	Person's title	54

[1]The number of students answering each item correctly divided by the 806 students that answered one or more items in the Language Sub-test.

Tables 36A-E: **Language Sub-test Continued**

Table 36C: **Capitalization Continued**

Item Number	Capitalization Rule	Percent Correct[1]
70	No caps: common noun within sentence	92
71	Title of institution	92
72	No caps: Preposition within title	91
73	Title of institution	94
74	No caps: common noun within sentence	90
75	No caps: common noun within sentence	84
76	No caps: common noun within sentence	85
77	Name of a building	81
78	Name of a street	88
79	No caps: common noun within sentence	94
80	No caps: common noun within sentence	89
81	Name of a building	94
82	Institution	98
83	Institution	96
84	No caps	93
85	No caps: common noun within sentence	86
86	Title of organization	99
87	Title of organization	99
88	Title of organization	98
89	Title of organization	95
90	Name of a person	81
91	Title of a composition	90
92	No caps	94
93	No caps	89
94	Institution	76
95	No caps	39
96	Name of a language	93
97	Nationality	97
98	National institution	87
99	No caps	84
100	Literary title	99
101	Literary title	95
102	First word in complimentary close	94
103	No caps	74

[1]The number of students answering each item correctly divided by the 806 students that answered one or more items in the Language Sub-test.

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Tables 36A-E: **Language Sub-test Continued**

Table 36D: **Dictionary Skills**

Dictionary Skills tests the student's ability to use a dictionary. Each of the 24 questions was designed to measure certain study skills in language.

Item Number	Topic Measured	Percent Correct[1]
104	Choice of meaning	80
105	Choice of meaning	60
106	Recognition of root word	60
107	Guide words	67
108	Choice of meaning	77
109	Choice of meaning	40
110	Accent mark	58
111	Guide words	57
112	Choice of meaning	58
113	Choice of meaning	39
114	Part of speech	60
115	Accent mark	41
116	Choice of meaning	39
117	Choice of meaning	59
118	Spelling	42
119	Choice of meaning	42
120	Pronunciation	78
121	Pronunciation	53
122	Pronunciation	55
123	Pronunciation	54
124	Pronunciation	52
125	Pronunciation	24
126	Pronunciation	17
127	Pronunciation	31

[1]The number of students answering each item correctly divided by the 806 students that answered one or more items in the Language Sub-test.

Table 36E: **Sentence Sense**

In Part E, Sentence Sense, the student is required to read a group of words and decide whether they constitute one complete sentence, more than one complete sentence, or no complete sentence.

Item Number	Topic Measured	Percent Correct[1]
128	Sentence fragment	69
129	Sentence fragment	53
130	One complete sentence	81
131	Run-together sentences	66
132	Sentence fragment	58
133	Run-together sentences	77
134	One complete sentence	72
135	Sentence fragment	64
136	Run-together sentences	59
137	Sentence fragment	22
138	Run-together sentences	78
139	Sentence fragment	75
140	One complete sentence	56
141	Run-together sentences	58
142	Run-together sentences	71
143	Sentence fragment	46
144	Run-together sentences	76
145	One complete sentence	70

[1]The number of students answering each item correctly divided by the 806 students that answered one or more items in the Language Sub-test.

Table 37: **Arithmetic Computation Sub-test**

The Arithmetic Computation Test measures proficiency in the computational skills appropriate for grades 7, 8 and 9. The fundamental operations of addition, subtraction, multiplication and division are extended to include computation with fractions, solution of a number sentence, appropriate operations with negative numbers, and solution of percent examples.

In the item content description below, the letter "d" stands for the number of digits in the computation, e.g. 2d – 1d means 2 digits minus 1 digit (28-8).

Item Number	Topic Measured	Percent Correct[1]
1	Division: 5d ÷ 2d	67
2	Subtraction: 6d – 5d	82
3	Division: 4d ÷ 2d	88
4	Mixed numbers: addition	73
5	Division: decimals	74
6	Multiplication: 3d x 3d	70
7	Subtraction: 6d – 5d	76
8	Division: decimals	88
9	Fractions: subtraction	72
10	Mixed numbers: multiplication	69
11	Addition: 4d + 4d + 4d + 4d	80
12	Mixed numbers and fractions: division	63
13	Rounding	46
14	Mixed numbers and fractions: addition	72
15	Rounding	66
16	Multiplication: 3d x 3d	67
17	Addition: 4d + 4d + 4d + 4d	68
18	Multiplication: 4d x 2d	53
19	Mixed numbers: subtraction	53
20	Percent	39
21	Whole and mixed numbers: multiplication	45
22	Equation	61
23	Rounding	53
24	Percent	24
25	Division: decimals	54
26	Percent	35
27	Division: decimals	51
28	Equation	71
29	Division: 2d ÷ 2d	33
30	Equation	46
31	Equation	48
32	Percent	20
33	Percent	24
34	Directed numbers: multiplication	60
35	Percent	23
36	Equation	31
37	Directed numbers: addition	50
38	Equation	38
39	Directed numbers: fraction	55
40	Equation	29
41	Exponent	35

[1]The number of students answering each item correctly divided by the 804 students that answered one or more items in the Arithmetic Computation Sub-test.

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Table 38: **Arithmetic Concepts Sub-test**

In addition to the concepts measured at the Intermediate II level, this test measures formulas, operations with negative numbers, operations with exponents, roots, expanded notation, properties of operations, simple statistics, prime numbers, divisibility, insight into set situations, and an understanding of non-decimal bases.

Item Number	Topic Measured	Percent Correct[1]
1	Fraction concepts	67
2	Rounding	57
3	Roman numerals	79
4	Equation	90
5	Number property and operational relationship	58
6	Fraction concepts	52
7	Number property and operational relationship	63
8	Rounding	45
9	Estimation	44
10	Number property and operational relationship	77
11	Percent	32
12	Formula	51
13	Number property and operational relationship	55
14	Fraction concepts	39
15	Number property and operational relationship	35
16	Number property and operational relationship	63
17	Roots	45
18	Powers	73
19	Directed number	67
20	Measurement (time)	69
21	Equation	53
22	Number series	50
23	Number property and operational relationship	51
24	Percent	43
25	Number property and operational relationship	39
26	Estimation	46
27	Vocabulary	64
28	Number property and operational relationship	35
29	Number property and operational relationship	64
30	Number property and operational relationship	33
31	Fraction concepts	31
32	Estimation	39
33	Set	55
34	Set	57
35	Equation	29
36	Number property and operational relationship	24
37	Prime number	48
38	Non-decimal numbers	30
39	Roots	7
40	Non-decimal numbers	19

[1]The number of students answering each item correctly divided by the 799 students that answered one or more items in the Arithmetic Concepts Sub-test.

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Table 39: **Arithmetic Applications Sub-test**

The items in this sub-test measure reasoning with problems taken from life experiences. The general reading vocabulary has been kept much below the problem-solving level being measured. Computation difficulty has been controlled so that it is only a minor factor.

Item Number	Topic Measured	Percent Correct[1]
1	Rate	69
2	Measurement	68
3	Reading a graph	41
4	Reading a graph	63
5	Reading a graph	45
6	Reading a graph	63
7	Reading a graph	42
8	Reading a graph	46
9	Reading a graph	85
10	Reading a graph	58
11	Measurement	49
12	Proportion	43
13	Rate	64
14	Division problem	66
15	Problem analysis	67
16	Problem analysis	13
17	Measurement	45
18	Proportion	55
19	Measurement	26
20	Multiple-step problem	26
21	Problem analysis	42
22	Multiple-step problem	16
23	Profit	14
24	Commission	23
25	Discount	30
26	Reading a table	44
27	Reading a table	21
28	Reading a table	31
29	Rate	14
30	Geometry	39
31	Proportion	15
32	Geometry	21
33	Interest	18
34	Logical reasoning	13
35	Probability	8
36	Geometry	19

[1]The number of students answering each item correctly divided by the 795 students that answered one or more items in the Arithmetic Applications Sub-test.

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Tables 40A & B: **Social Studies Sub-test**

The Social Studies Test is divided into Part A: Content and Part B: Study Skills. Part A: Content consists of 52 items designed to measure knowledge in areas such as history, geography and civics, as well as the student's understanding of the interdependence of these areas. The objective of Part B is the measurement of the student's ability to use reference materials.

Table 40A: **Content**

Item Number	Topic Measured	Percent Correct[1]	Item Number	Topic Measured	Percent Correct[1]
1	Sociology	72	27	Civics	42
2	History	80	28	Civics	38
3	Sociology	41	29	History	44
4	Geography	58	30	Civics	31
5	Civics	67	31	Economics	47
6	History	55	32	History	32
7	Civics	59	33	Civics	49
8	Economics	48	34	Sociology	38
9	Civics	46	35	History	18
10	Vocation	74	36	History	28
11	History	68	37	Sociology	31
12	Civics	52	38	Sociology	31
13	Civics	49	39	Sociology	32
14	Sociology	58	40	History	42
15	Economics	54	41	Economics	25
16	Geography	63	42	Geography	43
17	Geography	61	43	Economics	32
18	History	52	44	Sociology	43
19	Civics	64	45	Civics	35
20	Geography	55	46	History	34
21	Industry	28	47	Geography	23
22	Economics	33	48	Geography	11
23	Geography	40	49	Economics	15
24	Geography	56	50	Civics	22
25	Geography	53	51	Civics	16
26	Sociology	55	52	Civics	35

[1]The number of students answering each item correctly divided by the 794 students that answered one or more items in the Social Studies Sub-test.

Tables 40A & B: **Social Studies Sub-test Continued**

Table 40B: **Study Skills**

Item Number	Topic Measured	Percent Correct[1]
53	Reading a double bar or line graph	58
54	Reading a double bar or line graph	60
55	Reading a double bar or line graph	52
56	Reading a double bar or line graph	67
57	Reading a double bar or line graph	53
58	Reading a double bar or line graph	49
59	Using references	46
60	Using references	52
61	Using references	62
62	Using references	45
63	Using references	56
64	Using references	45
65	Using a bibliography	79
66	Using a bibliography	60
67	Using a bibliography	61
68	Using a bibliography	49
69	Using a bibliography	26
70	Using a bibliography	38
71	Using a library index card	54
72	Using a library index card	65
73	Using a library index card	38
74	Using a library index card	55
75	Using a library index card	27
76	Using a library index card	77
77	Reading a globe	86
78	Reading a globe	53
79	Reading a globe	82
80	Reading a globe	70
81	Reading a globe	45
82	Reading a globe	47
83	Reading a globe	56
84	Reading a globe	63
85	Reading a globe	64
86	Reading a globe	39
87	Reading a globe	41
88	Interpreting a political poster	51
89	Interpreting a political poster	25
90	Interpreting a political poster	25
91	Interpreting a political poster	39
92	Interpreting a political poster	29

[1]The number of students answering each item correctly divided by the 794 students that answered one or more items in the Social Studies Sub-test.

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Table 41: **Science Sub-test**

The primary objectives measured by the Science Test are (1) the ability to see the application of the principles of science in our environment and everyday activities, (2) knowledge of the facts and generalizations from the various branches of the natural sciences, and (3) some knowledge of the scientific method.

Item Number	Topic Measured	Percent Correct[1]	Item Number	Topic Measured	Percent Correct[1]
1	Plants	91	31	Safety	64
2	Conservation	77	32	Animals	71
3	Scientific method	88	33	Animals	59
4	Electricity and magnetism	80	34	Electricity	45
5	Conservation	73	35	Plants	43
6	Energy and machines	54	36	Heat	35
7	Energy and machines	79	37	Plants	47
8	Magnetism	75	38	Earth science	49
9	Chemistry	73	39	Earth science	51
10	The body	65	40	Earth science	46
11	Earth science	60	41	Astronomy	47
12	Animals	61	42	Light	40
13	Plants and animals	47	43	Astronomy	30
14	Scientific method	48	44	Plants	44
15	The body	57	45	Animals	36
16	Earth science	54	46	Magnetism; scientific method	39
17	Science in industry	73	47	Plants	37
18	Astronomy	65	48	Earth science	25
19	Chemistry	77	49	Energy and machines	43
20	The body	66	50	Air and weather	33
21	Animals	51	51	Energy and machines	39
22	Weather; plants and animals	76	52	Earth science	24
23	Magnetism	42	53	The body	25
24	Plants	70	54	Heat	28
25	The body	43	55	The body	20
26	The body	52	56	Plants	17
27	Sound	36	57	Food	17
28	Scientific term	49	58	Energy	24
29	Earth science	69	59	Earth science	17
30	Air and weather	55	60	Astronomy	21

[1]The number of students answering each item correctly divided by the 793 students that answered one or more items in the Science Sub-test.

APPENDIX I

The Annual Survey of Hearing Impaired Children and Youth

BACKGROUND AND PURPOSE

The Annual Survey of Hearing Impaired Children and Youth began its activities in May 1968. The program is established as a permanent research organization to collect, process and disseminate data on hearing impaired individuals through college age in the United States. The need for such information has been of prime concern to educators, audiologists, legislators, psychologists and others.

The Division of Research, Bureau of Education for the Handicapped, Office of Education, Department of Health, Education, and Welfare initiated the Annual Survey and provides the major share of its funding. Two preceding years of pilot and developmental work in a five state area determined the operational feasibility of the program. The Annual Survey is conducted by the Office of Demographic Studies of Gallaudet College.

The long range goal of the Annual Survey is to collect data on the entire hearing impaired population through college age in the United States. For operational reasons the hearing impaired population has been divided into three groups:

GROUP A: Hearing impaired individuals who are receiving special educational services related to their hearing loss

GROUP B: Individuals who have been diagnosed as being hearing impaired but who are not receiving any special educational services

GROUP C: Individuals in the general population who, in fact, are hearing impaired but their hearing loss has not been diagnosed at a given point in time.

To this point in its work, the Annual Survey has devoted its resources almost totally to collecting and disseminating information on Group A.

The primary interest of this national program is in those kinds of data that can serve to improve and expand the educational opportunities available to hearing impaired individuals. The program encourages the use of its data by administrators, researchers, and other professionals providing services to the hearing impaired, as well as by any individual or group devoted to improving the results of special education for hearing impaired people.

POLICIES

In its attempt to provide useful information to those interested in hearing impaired children and youth, the Annual Survey has the benefit of the guidance and advice of its National Advisory Committee. Among its members are hearing and deaf individuals, administrators, researchers, teachers, and specialists from other areas within the field of hearing impairment. Every attempt is made to maintain a wide diversity of interests and competencies, as well as geographic representation, among its members. On questions of a technical nature, consultants from specialized fields are utilized as particular needs arise.

While permanent and national in scope, the Annual Survey does not aim at replacing or absorbing the work of other programs at the state or local level which are devoted to the collection and dissemination of information on hearing impaired children and youth. Rather, it seeks to facilitate their work through cooperation whenever this is feasible. Nor does the Annual Survey view itself as the center for

all types of research in this field. It focuses its activities on collecting and disseminating limited kinds of information on selected topics. It seeks to make available to outside researchers the vast amount of data it possesses and any special services it is feasible to render to them.

One restriction which is observed by the Survey is that no data will be released which permits the identification of an individual student or cooperating program. Exception to this only occurs where a written release is obtained from the program supplying the data. Otherwise, independent researchers using the data of the Annual Survey have access only to summary statistics or coded information.

Since the Annual Survey attempts to promote the use of its data by those whose judgments and decisions will have a direct or indirect bearing on the education of hearing impaired individuals, it recognizes a responsibility to devote a part of its resources to the evaluation of the quality of the data collected and disseminated. This is particularly important because it seeks to establish national norms on the basic characteristics of hearing impaired children and youth. Thus, in its dissemination of information, the Annual Survey makes every effort to properly qualify its data and indicate any limitation associated with it.

The Annual Survey seeks to avoid associating itself with any established position relating to controversial issues within the field of educating hearing impaired individuals. Thus, it does not interpret its own data. Rather, it seeks to facilitate the use of its data by reputable individuals or organizations that may themselves wish to draw policy implications or test research hypotheses that are related to these issues.

DATA COLLECTION

During the first year of the Survey, the 1968-69 school year, data collection activities were directed towards all schools for the deaf and a representative sample (15 percent) of all special classes. In addition, records on students who were receiving itinerant services were obtained in total from two states and in part from several states. In all 25,363 individual records were collected.

Each year the Survey has steadily increased its coverage of the population. Over 550 reporting sources with approximately 41,000 students enrolled in their programs cooperated with the Annual Survey for the 1970-71 school year. It is expected that for the 1971-72 school year, data will be received on about 46,000 hearing impaired students throughout the country from about 750 reporting sources.

PROGRAM SERVICES AND PUBLICATION OF THE DATA

The program is accumulating a large volume of statistical data. The processing and dissemination of these data hold wide implications and potential benefits for educational, audiological, medical, psychological, legislative and other services to the hearing impaired. Towards the goal of fully utilizing the data, the program will make data available to independent investigators for research purposes, including masters' theses, doctoral dissertations, institutional level research programs, private studies, etc. Competent researchers are encouraged to propose detailed analyses of the data to further increase its usefulness.

The Annual Survey has conducted two National Academic Achievement Testing Programs, the first in the Spring of 1969 and the second in the Spring of 1971. The Annual Survey supplied testing materials and scoring services free of charge to participating programs. Data collected from these special studies have been published and continue to be analyzed. A reliability study also was conducted in conjunction with the most recent Achievement Testing Program and this evaluation study will help to determine the reliability of an achievement test designed for hearing students when used by hearing impaired students.

The Survey Office aiso provides each participating school or program with tabulations of the characteristics of their own students. The participating programs may obtain a set of punch cards containing the information submitted on each of their students. Further, the Annual Survey Office is available to provide consultation services to particular schools or school systems that are concerned with gathering and processing data on their students.

Participation in the Survey has led many of the programs to examine their current forms and record-keeping procedures. This led to requests that the Survey develop a uniform record form to keep student information for use in schools and classes throughout the country. Such a form was developed and used on a trial basis by a few schools during the 1970-71 school year. On the basis of this experience, the form was revised and distributed for use during the 1971-72 school year. Indications are that approximately half of the educational programs for the hearing impaired in the United States are using the form during the 1971-72 school year.

The Annual Survey also has conducted a survey of the fifty states. The state departments of either Education or Health were contacted for information

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on their particular state. Among the types of information sought were: (1) description of services available to hearing impaired children and youth, (2) types of screening programs now in existence, (3) the referral system for those found to have a hearing loss, (4) the number of students receiving special services, and (5) the type of legislation relating to hearing impaired students.

The Annual Survey reports much of the data in a series of publications. A listing of the publications to date appears on the inside back cover of this report.

FUTURE PLANS

During the early stages of the program, the Annual Survey devoted most of its resources to gathering basic demographic information on hearing impaired students, and to extending its coverage of these students to its current level. It is now in the process of formulating future plans, with the intention of beginning to collect information on selected topics of special interest to those in the field.

It is anticipated that the Survey will begin to collect data on the institutions themselves and the auxiliary services available to the students at the schools. Sample studies are planned in which the families of the hearing impaired students will supply information to the Survey.

Meanwhile, the Annual Survey will continue its efforts to produce an achievement test appropriate for hearing impaired students. Also being considered is the feasibility of developing measures of student performance in other areas beside academic achievement.

The initial success of the Annual Survey can be measured only in terms of the levels of participation and interest expressed by many individuals. The ultimate success will be measured not in terms of volume of data that will be collected and published, but in terms of its contributions to improving educational and other opportunities for hearing impaired children and youth.

APPENDIX II

STANDARDIZED TESTING PROCEDURES DEVELOPED FOR THE SPRING 1971 ACHIEVEMENT TESTING PROGRAM

The analyses of data collected from the 1969 achievement testing program indicated that different methods of administering the tests were being used among individual school and class programs. As test scores can be affected by the manner in which the test is given, it became necessary to establish uniform testing procedures. This served the purpose of making test administration procedures consistent throughout the schools and classes participating in the Spring 1971 testing program. It also ensured that test scores would be comparable from teacher to teacher and school to school. A description of the standardized procedures implemented to collect the data in this report is given below.

SCREENING TESTING OR PRE-TESTING OF STUDENTS

Analyses of the 1969 testing data demonstrated that many sub-tests, particularly at the Intermediate and Advanced battery levels, were not showing true differences between good and poor students This occurred mainly because students were receiving test battery levels too high or too difficult for them. The number of items they were able to answer correctly was insufficient to show actual achievement differences, and scores tended to cluster about a chance or guessing range.

This guessing factor may result in a student's score being spuriously affected by the test battery level he receives. Generally, by guessing alone, the higher the battery level administered, the higher will be the scores. For example, if a beginning first grade student were administered the Social Studies sub-test of the Advanced Battery, and merely guessed at each question, he would likely receive a 4.6 Grade Equivalent score. The criteria used to select test battery levels for students varied throughout the country. It was therefore necessary to establish valid battery selection methods that would be consistent among the participating schools. A Screening Testing procedure was implemented to accomplish this goal.

The selection of the screening test was, for the most part, based on the internal analyses of the 12,000 achievement records collected two years earlier. The search was to find one sub-test within the Stanford Series which best indicated how well a student would perform on the remainder of the sub-tests in the full battery. On the basis of various statistical analyses, the Paragraph Meaning sub-test consistently proved to be the best predictor of overall student performance. In setting the specifications for using a Paragraph Meaning score to select the full battery, statistical adjustments were made which allowed for the fact that younger students generally scored higher in reading than on other test content areas, while older students scored relatively lower on reading than in the remainder of the test, e.g., arithmetic computation.

Two levels of Screening Tests were used, one appropriate for students achieving at a general level of the end of the fourth grade and below, and one for students estimated to be functioning at the beginning fifth grade level and above. In ordering screening test materials, the participating programs were asked to estimate the number of students maintaining a general academic level within each of these broad categories. The Paragraph Meaning sub-test from the Primary II and Intermediate II batteries of the Stanford Series, Form X, were employed as the screening instruments. The school administered and scored the screening test. The number of items the student answered correctly was used to select the most valid battery level for him. Guidelines for using screening test scores were formulated and set by the Annual Survey.

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PRACTICE TESTING TO INSTRUCT STUDENTS IN TEST TAKING PROCEDURES

The directions to administer parts of the Stanford Tests and the question-answer format of some test items proved difficult to follow, for many students in special programs for the hearing impaired. They lacked exposure to this type of testing procedure. In analyzing the 1969 achievement test results, it became clear that many students took the test not understanding the test structure or how to mark their answers. The seriousness of this problem led the Annual Survey to develop sets of practice tests appropriate to each battery level of the Stanford Series. Samples of the test directions, questions, and answer marking procedures were included in the practice materials, along with an explanation of the purposes of academic achievement testing. Teacher manuals were developed to accompany the practice tests.

Participating programs received a practice test for each student and were requested to administer them two to four days prior to the Stanford full batteries. The practice tests were to be used directly to teach test-taking mechanics to the students and prepare them for their best performance on the real test. As the teachers gave the practice session, they too became better prepared for administering the Stanford Tests.

SPECIAL EDITION OF THE PRIMARY LEVEL TEST BATTERIES

The Primary I and II test levels, those intended for the academic range of the middle of grade 1 to the end of grade 3, contain many sub-tests structured to be administered by oral presentation. A hearing impaired student's response to a dictated question may be a function of his receptive communication skill and not his knowledge of the answer. Previously, schools attempted various procedures to overcome this problem – overheads, blackboards, and the like. To standardize presentation of the dictated sub-tests and make their design more valid, the Annual Survey arranged with the test authors and publisher for a special edition. This applied to the Primary I and II levels only and was called Form W-HI. The Intermediate and Advanced test levels are self-administering and contain no dictated test questions.

Within the Form W-HI edition, those test questions previously to be strictly dictated were also printed in the test booklet itself. The teacher was to dictate the question and then direct the student to read it in his own booklet before marking his answer. The procedure served to make uniform the administration of dictated sub-tests. In the Primary I, Form W-HI, modifications were made in the Vocabulary and Arithmetic sub-tests. The Science and Social Studies Concepts and Arithmetic Concepts sub-tests were modified at the Primary II level, Form W-HI.

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APPENDIX III

SCHOOLS AND CLASSES THAT PARTICIPATED IN THE ACHIEVEMENT TESTING PROGRAM

ALABAMA
- Alabama Institute for the Deaf and Blind
- Blossomwood Elementary School
- Children's Center of Montgomery, Inc.
- Holt Elementary School
- University of Montevallo Speech and Hearing Clinic

ALASKA
- Anchorage Borough School District

ARIZONA
- Arizona State School for the Deaf and Blind
- Phoenix Day School for the Deaf

ARKANSAS
- Jenkins Memorial Children's Center

CALIFORNIA
- Alhambra City School District
- Anaheim Union High School District
- Bellflower Unified School District
- Mary E. Bennett School for the Deaf
- Butte County Schools
- California School for the Deaf, Riverside
- Cedarcreek School for the Deaf
- Centralia School District
- Chula Vista City School District
- Covina Valley Unified School District
- El Centro Elementary School District
- Escondido Union School District
- Garden Grove Unified School District
- Goleta Union Elementary School District
- Kern County Schools
- La Mesa-Spring Valley School District
- Lancaster Elementary School District
- Livermore Valley Joint Unified School District
- Lompoc Unified School District
- Marin County Schools
- Marlton Elementary School
- Monterey County Schools
- Mt. Diablo Unified School District
- Oakland City Unified School District
- Orange Unified School District
- Pasadena City Unified School District
- Placer County Public Schools
- Riverside Unified School District
- San Bernardino County Schools
- San Diego Unified School District
- San Francisco County Schools
- San Jose City Unified School District
- San Juan Unified School District
- Santa Ana Unified School District
- Santa Clara Unified School District
- Santa Rosa City School District
- Simi Valley Unified School District
- Solano County Schools
- Stockton Unified School District
- Sutter County Schools
- Tehama County Public Schools
- Tulare County Schools
- Tulare Union High School District

COLORADO
- Colorado School for the Deaf and Blind
- John Evans School
- Meadow Elementary School

CONNECTICUT
- American School for the Deaf
- Class for Preschool Hearing Impaired Children, Hartford
- East Hartford Public Schools
- Green Acres School
- Hamden-New Haven Cooperative Educational Center
- Magrath School
- Mystic Oral School for the Deaf
- West Haven Department of Special Education

DELAWARE
- Margaret S. Sterck School for Hearing Impaired

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DISTRICT OF COLUMBIA
- Capital Region Model Secondary School (MSSD)
- Kendall School for the Deaf
- Speech and Hearing Center-Public Schools of the District of Columbia

FLORIDA
- Brevard County Public Schools
- Florida School for the Deaf and Blind
- Leon County Program for Hearing Impaired Children
- Robert McCord Oral School
- Palm Beach County Schools
- Rock Lake Elementary School

GEORGIA
- Atlanta Public Schools
- Atlanta Speech School, Inc.
- Cobb County Board of Education
- Lawton B. Evans School
- Houston Speech and Hearing School
- Robert Shaw Center

HAWAII
- Central Intermediate School
- Diamond Head School for the Deaf
- McKinley High School

IDAHO
- Idaho School for the Deaf and Blind

ILLINOIS
- Bell Elementary School
- Bi-County Oral Deaf Program
- Black Hawk Hearing Handicapped Program
- Champaign Community Schools
- Chicago Vocational High School
- Decatur Public School District
- Elim Christian School for the Exceptional Child
- Ericson School
- Illinois School for the Deaf
- Jamieson School
- Marquette Elementary School
- Thomas Metcalf School
- Morrill Elementary School
- Northern Suburban Special Education District
- Northwest Suburban Special Education Organization
- Northwestern Illinois Association
- Perry School
- Ray School
- Reinberg School
- Scammon School
- Shields Elementary School
- South Metropolitan Association for Low-Incidence Handicapped
- Special Education District of Lake County
- Springfield Public Schools
- West Suburban Association for the Hearing Handicapped
- James Ward Elementary School

INDIANA
- Glenwood Elementary School
- Hammond Public Schools
- Indiana School for the Deaf
- Marion Community Schools
- Morrison-Mock School
- Fayette County Schools Corporation

IOWA
- Black Hawk-Buchanan County Board of Education
- Cedar Rapids Community Schools
- Hope Haven School
- Iowa School for the Deaf
- Wilson School-Oral Deaf Department

KANSAS
- Kansas School for the Deaf
- Wichita Public Schools

KENTUCKY
- Kentucky School for the Deaf
- Louisville Public Schools

LOUISIANA
- Acadia Parish School Board
- Lafayette Parish School Board
- Louisiana School for the Deaf
- Monroe City Schools
- Sunset Acres School

MAINE
- Governor Baxter State School for the Deaf

MARYLAND
- Baltimore County Department of Special Education
- Maryland School for the Deaf
- Montgomery County Public Schools
- Prince George's County Public Schools

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MASSACHUSETTS
- Belmont Public Schools
- Beverly School for the Deaf
- Boston School for the Deaf
- Peter Bulkeley School
- Clarke School for the Deaf
- Lawrence Primary Program for the Deaf
- Leominster Day Classes for the Hearing Impaired
- Horace Mann School for the Deaf
- Mercer School
- Willie Ross School for the Deaf
- Upsala Street School
- Woburn Day Class Program
- Worcester County Hearing and Speech Center

MICHIGAN
- Howard D. Crull Intermediate School (Roosevelt Elementary)
- Detroit Day School for Deaf
- Douglas School
- Durant-Tuuri-Mott School
- Escanaba Area Jr. High School
- Ferndale Public Schools
- Handley School
- Ida Public Schools
- Kalamazoo Public Schools
- Ann J. Kellogg School
- Lakeview Elementary School
- Lakeview Public Schools
- Lindemann Elementary School
- Lutheran School for the Deaf
- Marquette Elementary
- Michigan School for the Deaf
- Oakland Schools
- Public School Program for Deaf and Hard-of-Hearing, Jackson
- Traverse City Public Schools
- Utica Schools

MINNESOTA
- Duluth Public Schools
- Minnesota School for the Deaf
- St. Paul Area Program for Impaired Hearing

MISSISSIPPI
- Mississippi School for the Deaf
- Popp's Ferry Elementary School

MISSOURI
- Central Institute for the Deaf
- Delaware Elementary School
- Litzsinger School
- Missouri School for the Deaf
- St. Louis County Special School District for the Handicapped
- School District of Kansas City

MONTANA
- Montana State School for the Deaf and Blind

NEBRASKA
- Nebraska School for the Deaf
- Omaha Public Schools
- Prescott Acoustically Handicapped Unit

NEVADA
- Ruby S. Thomas Elementary School

NEW HAMPSHIRE
- Crotched Mountain School for the Deaf

NEW JERSEY
- Bruce Street School
- Class for the Hard of Hearing, Kearny
- Cumberland County Public Schools
- Hackensack Program for the Deaf
- Marie H. Katzenbach School for the Deaf
- Millburn Avenue School
- Township Public Schools, Neptune
- Woodbridge Public School System

NEW MEXICO
- New Mexico School for the Deaf

NEW YORK
- Board of Cooperative Educational Services, Nassau
- Board of Cooperative Educational Services of Washington, Warren and Hamilton Counties
- Board of Cooperative Educational Services, Suffolk County II
- Board of Cooperative Educational Services, Suffolk County III
- Catholic Charities Day Classes for Deaf Children
- Mill Neck Manor Lutheran School
- New York School for the Deaf – White Plains
- New York State School for the Deaf – Rome
- Rochester School for the Deaf
- St. Francis De Sales School for the Deaf
- St. Joseph's School for the Deaf
- St. Mary's School for the Deaf
- School for Language and Hearing Impaired Children – Public School 158
- Union-Endicott Central School District

NORTH CAROLINA
- Eastern North Carolina School for the Deaf
- North Carolina School for the Deaf

NORTH DAKOTA
- Longfellow School
- North Dakota School for the Deaf

OHIO
- Alexander Graham Bell School for the Deaf, Cleveland
- Canton Public Schools
- Kennedy School for the Deaf
- Kent Public Schools
- Lakewood Public Schools
- Lorain Board of Education
- Mansfield City Schools
- Ohio School for the Deaf
- Program for Physically Handicapped, Toledo
- Springfield City Schools
- Youngstown Public Schools
- Zanesville Classes for Deaf

OKLAHOMA
- Kerr Junior High School
- Oklahoma City Public Schools
- Oklahoma School for the Deaf
- University of Oklahoma Medical Center

OREGON
- Oregon State School for the Deaf
- Portland Public Schools
- Tucker-Maxon Oral School
- Washington County Intermediate Education District

PENNSYLVANIA
- DePaul Institute
- Ebensburg State School and Hospital
- Erie City School District
- Home of the Merciful Saviour for Crippled Children
- Willis and Elizabeth Martin School
- Pennsylvania School for the Deaf
- Pennsylvania State Oral School for the Deaf
- Programs for Speech and Hearing Handicapped:
  - Centre County Schools
  - Clinton County Schools
  - Fayette County Schools
  - Northampton County Schools
- Western Pennsylvania School for the Deaf

RHODE ISLAND
- Rhode Island School for the Deaf

SOUTH CAROLINA
- Florence County School District #3
- Pate Elementary School
- South Carolina School for the Deaf and Blind

SOUTH DAKOTA
- South Dakota School for the Deaf

TENNESSEE
- Knox County Public Schools
- Memphis Parents' School for Deaf and Aphasic
- Tennessee School for the Deaf

TEXAS
- Abilene Public Schools – Day Class for the Deaf
- Austin Independent School District
- Bexar County School for the Deaf
- P.F. Brown Elementary School
- The Callier Hearing and Speech Center
- Corpus Christi Independent School District
- County-Wide Area Day School, El Paso
- Dallas Independent School District
- Hereford Independent School District
- Houston Independent School District
- Houston School for Deaf Children
- Tarrant County Day School for Deaf
- Texas School for the Deaf
- Wichita Falls Independent School District

UTAH
- Utah Schools for the Deaf and Blind
- Utah State University – Edith Bowen Laboratory School

VERMONT
- Austine School for the Deaf

VIRGINIA
- Arlington County Public Schools
- Charlottesville Public Schools
- Diagnostic, Adjustive and Corrective Center for Learning
- Virginia School for the Deaf and Blind
- Virginia State School for the Deaf at Hampton

WASHINGTON
- Bellevue Public Schools
- Bellingham School District #501
- Edna E. Davis School

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Northshore School District #417
Seattle Public Schools
Shoreline School District #412
Washington State School for the Deaf

WEST VIRGINIA
West Virginia School for the Deaf and the Blind

WISCONSIN
City District Public Schools, La Crosse
Day School for the Deaf, Wausau
Lincoln Elementary, Eau Claire
Madison Public Schools
Pleasant Hill School
St. John's School for the Deaf
School for the Deaf, Green Bay
School for the Deaf, Oshkosh
E. H. Wadewitz School
Wisconsin School for the Deaf

WYOMING
Wyoming School for the Deaf

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REPORTS FROM THE ANNUAL SURVEY OF HEARING IMPAIRED CHILDREN AND YOUTH

SERIES D

No. 1 Academic Achievement Test Performance of Hearing Impaired Students—United States: Spring 1969

No. 2 Item Analysis of Academic Achievement Tests Hearing Impaired Students—United States: Spring 1969

No. 3 Additional Handicapping Conditions, Age at Onset of Hearing Loss, and Other Characteristics of Hearing Impaired Students—United States: 1968-69

No. 4 Type and Size of Educational Programs Attended By Hearing Impaired Students—United States: 1968-69

No. 5 Summary of Selected Characteristics of Hearing Impaired Students – United States: 1969-70

No. 6 Audiological Examinations of Hearing Impaired Students – United States: 1969-70

No. 7 Characteristics of Hearing Impaired Students Under Six Years of Age, United States: 1969-70

No. 8 Item Analysis of an Achievement Testing Program for Hearing Impaired Students United States—Spring 1971